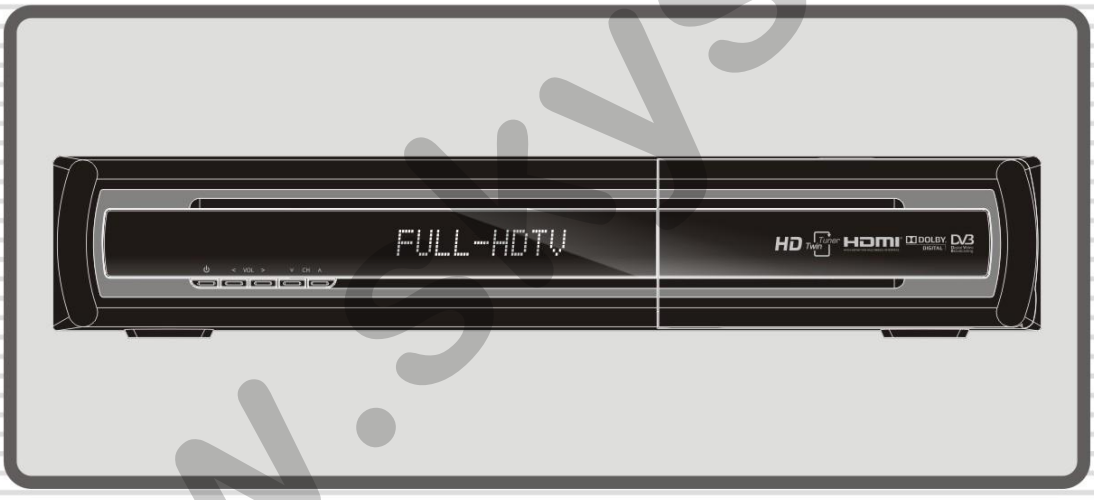
Full HD Digital Two Tuner Receiver

Digital Innovation Life

User's Manual

Sky Sat Royal HD PVR READY



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Precautions

1. Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not reverse the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING : *To Prevent fire or shock hazard do not expose the set to rain or moisture.*

2. Notice

- These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

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- The mains plug is used as the disconnect device. The disconnect device shall remain readily operable.

To reduce the risk of electric shock, do not remove the cover (or back).
No user serviceable parts are inside.
Refer servicing to qualified service personnel.

The Lightning Flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product

3. Copyright

This manual is protected by copyright laws.
Copy, use and reproduction of this manual in part or whole without Manufacturer's prior written approval are prohibited.

4. Disclaimer

The manufacturers, distributors and agents are not liable to any kind of damage caused by the use of the information contained in this manual.
The instruction and descriptions which this manual contains are based on the time of this manual's production.
The manufacturer constantly updates it with new functions and technology.
All the specifications are subject to change without prior notice.

5. Trademarks

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Before You Begin

1. Main Features

For the feature of DVB-S/S2, Satellite tuner only

- ✓ Supports MPEG4 /MPEG2 - HD/SD and Fully DVB-S2 /DVB-S Compliant
- ✓ Intelligent Blind Scan for both SD and HD TV & Multi-Satellite Search
- ✓ Multi-LNB Controlled by DiSEqC Control Version 1.0, 1.1, 1.2 and USALS

For the feature of DVB-C, Cable tuner only

- ✓ Supports MPEG4 /MPEG2 - HD/SD and Fully DVB-C Compliant

For the feature of DVB-T, Terrestrial tuner only

- ✓ Supports MPEG4 /MPEG2 - HD/SD and Fully DVB-T Compliant

For the feature of DVB-T2, Terrestrial tuner only

- ✓ Supports MPEG4 /MPEG2 - HD/SD and Fully DVB-T2 Compliant

Common features for all types of DVB receivers

- ✓ Twin Tuner HDTV PVR Receiver (H.264/ MPEG4 HD)
- ✓ Embedded Linux OS
- ✓ Time Shifting, Recording & Playback with Internal HDD (SATA) / External HDD (E-SATA or USB 2.0)
- ✓ Simultaneously Records of 3 Services and allows Watching 2 others (PIP)
- ✓ Powerful Extended EPG supports and Event Recording
- ✓ Three USB 2.0 Host ports (MP3 Player & JPEG Viewer)
- ✓ Xvid file play back supported
- ✓ Ethernet port Supported
- ✓ Premium Grade White VFD Display (12 Digit Alphanumeric)
- ✓ Premium Grade Universal remote control unit
- ✓ On-Screen Display with Full Color & Resolution
- ✓ Favorite Groups
- ✓ Powerful Service List Manager for Favorites, Lock, Skip, Move, Edit and Delete
- ✓ Service Sorting by Alphabet, Transponder and CAS
- ✓ User Friendly & Multi-language Supported (OSD & Menu)
- ✓ Teletext / Subtitle Supported
- ✓ Maximum 10,000 Services(TV & Radio) Programmable
- ✓ Picture-in-Picture (PIP) & Multi-picture Display
- ✓ Parental Lock / System Lock / Installation Lock
- ✓ HDMI Video & Audio Output (576i, 576p, 720p, 1080i, 1080p)
- ✓ Supports Y/Pb/Pr(component) Output in HD
- ✓ CVBS(composite) Video & Audio Output via RCA

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- ✓ CVBS, RGB, Y/C Video & Audio Output via TV SCART
- ✓ Optical Output for Digital Audio(SPDIF)
- ✓ Software & Service channel Database upgrade via USB & RS-232C port
- ✓ 2 Smart card reader and 2 Common Interface Slots
- ✓ 1W Stand-by Power Consumption

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2. Accessories

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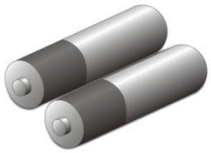
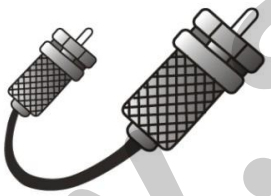
Remote Control

AAA size Batteries



HDMI Cable

Loop through Cable



AC Power Cord

NOTE : If any accessories listed above are missing, contact the sales representative where you purchased this unit.

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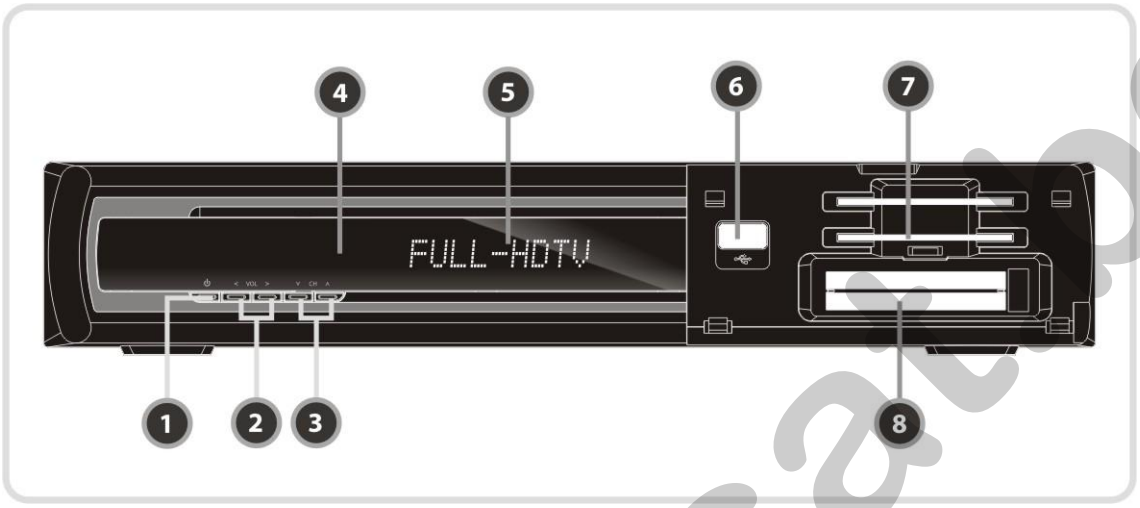
Hardware Description

1. Front Panel Configuration



1. ***POWER BUTTON*** **:** Press to switch between STANDBY and POWER ON modes**.**

2. ***Vol Up/Down BUTTON*** **:** Press to change audio volume in normal mode or to navigate menu in menu mode.

3. **CH Up/Down *BUTTON*** **:** Press to change services in normal mode, or to move highlighted-bar in menu mode.

4. ***Remote Sensor*** **:** Receives signal from remote controller.

5. ***VFD Display*** **:** The VFD consists of 12-digit letter. These letters display the current status of receiver such as service name, service information and so on.

6. ***USB (Front)*** **:** Use it when connecting to external USB storage device.

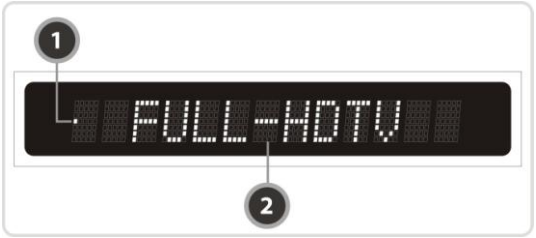
7. ***SMART CARD READER*** **:** Insert smart card for encrypted service access.

8. ***PCMCIA*** **:** To receive other pay-tv service you need a CA-Module(Viaccess, Irdeto, Nagravison, etc.) and a smart card from the service provider.

2. VFD(Vacuum Fluorescent Display)

1. ***Remote Indication LED*** : The LED lights on when a key on the Remote Controller is pressed.

2. ***Information*** : Display information including service name and other information.



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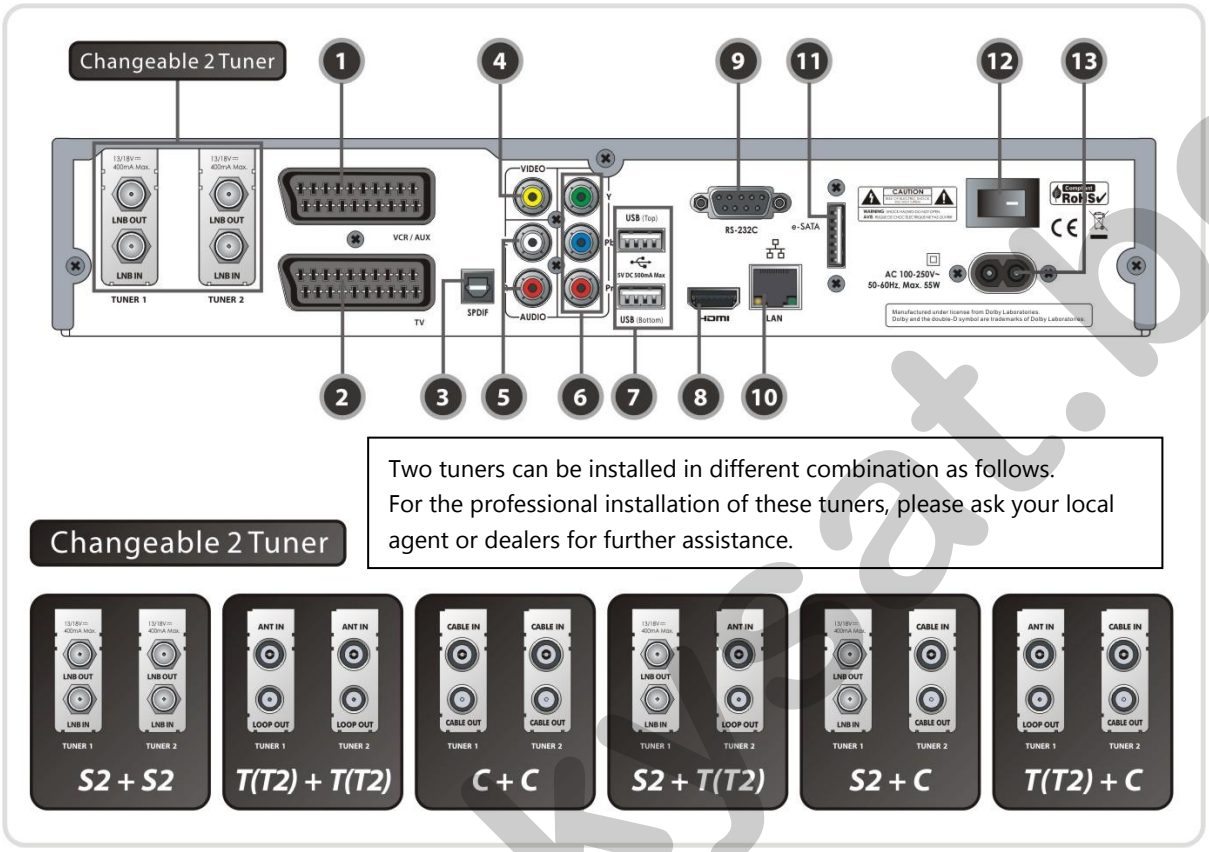
3. Rear Panel Configuration



1. ***VCR SCART*** : Connects to the VCR or DVD using a VCR SCART cable.
2. ***TV SCART*** : Connects to the TV input using a TV SCART cable.
3. ***SPDIF*** : Connects to the audio system using a S/PDIF cable. (digital audio)
4. ***VIDEO*** : Connects to the TV or VCR using a RCA cable. (Composite video output / Yellow)
5. ***AUDIO L/R*** : Connects to the TV or VCR using a RCA cable. (Stereo audio output / White, Red)
6. ***Component*** : Connects to the TV or VCR using a component cable. (YPbPr)
7. ***USB*** : Use it when connecting to external USB storage device.
8. ***HDMI*** : Connects to the TV by using a HDMI cable for the best quality picture and audio.
9. ***RS-232C*** : Serial port for firmware update and data transfer.
10. ***Ethernet*** : Local area network port for direct computer connection.
11. ***e-SATA*** : Connects to the external HDD via e-SATA cable.
12. ***A/C Switch*** : Power switch

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13. A/C power cable socket : Connects to A/C power cord.

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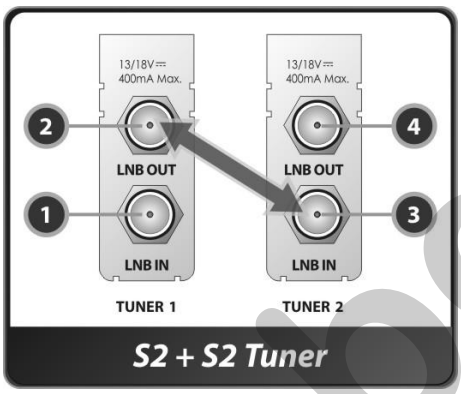
➢ ***In case of S2 + S2***



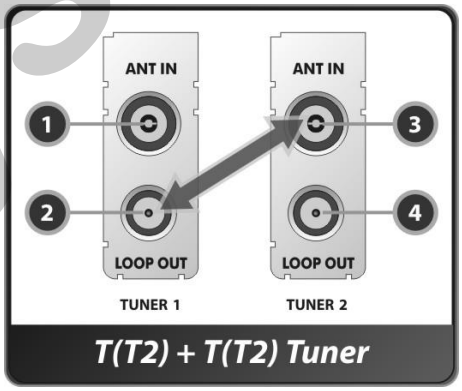
[TUNER 1]

1. ***LNB IN (Caution : Socket on the left bottom)***
   Satellite broadcasting signal input socket for the first tuner (TUNER 1). Connects a satellite antenna LNB cable.
2. ***LNB OUT***
   Satellite broadcasting signal output socket through the first tuner (TUNER 1). Connects to a second tuner (TUNER 2) for loop-through.

[TUNER 2]

3. ***LNB IN (Caution : Socket on the right bottom)***
   Satellite broadcasting signal input socket for the second tuner (TUNER 2). Connects a satellite antenna cable or from the first tuner (TUNER 1) LNB OUT connector.
4. ***LNB OUT***
   Satellite broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

➢ ***In case of T(T2) + T(T2)***



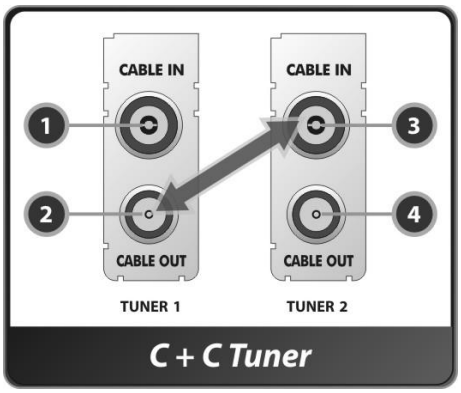
[TUNER 1]

1. ***ANT IN***
   Terrestrial broadcasting signal input socket for the first tuner (TUNER 1). Connects an aerial antenna.
2. ***LOOP OUT***
   Terrestrial broadcasting signal output socket through the first tuner (TUNER 1). Connects to second tuner (TUNER 2) for loop-through.

[TUNER 2]

3. ***ANT IN***
   Terrestrial broadcasting signal input socket for the second tuner (TUNER 2). Connects a aerial antenna cable or loop-through cable from the first tuner (TUNER 1).
4. ***LOOP OUT***
   Terrestrial broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

➢ ***In case of C + C***



[TUNER 1]

1. ***CABLE IN***
   Cable broadcasting signal input socket for the first tuner (TUNER 1). Connects a cable antenna.
2. ***CABLE OUT***
   Cable broadcasting signal output socket through the first tuner (TUNER 1). Connects to second tuner (TUNER 2) for loop-through.

[TUNER 2]

3. ***CABLE IN***

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Cable broadcasting signal input socket for the second tuner (TUNER 2). Connects a cable antenna or loop-through cable from the first tuner (TUNER 1).

4. *CABLE OUT*
Cable broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

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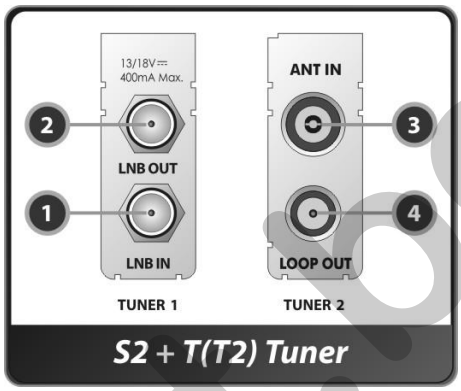
➢ ***In case of S2 + T(T2)***

[TUNER 1]

1. ***LNB IN (Caution : Socket on the left bottom)***
   Satellite broadcasting signal input socket for the first tuner (TUNER 1). Connects a satellite antenna LNB cable.
2. ***LNB OUT***
   Satellite broadcasting signal output socket through the first tuner (TUNER 1). Connects to another STB for loop-through.



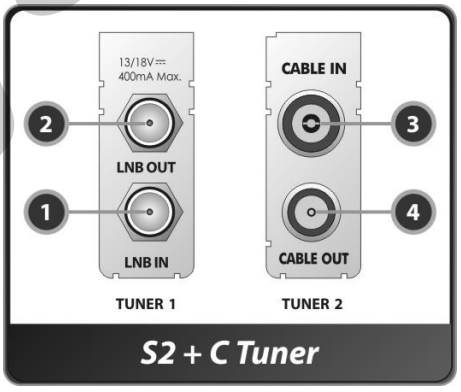
[TUNER 2]

1. ***ANT IN***
   Terrestrial broadcasting signal input socket for the second tuner (TUNER 2). Connects a aerial antenna cable.
2. ***LOOP OUT***
   Terrestrial broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

➢ ***In case of S2 + C***

[TUNER 1]

1. ***LNB IN (Caution : Socket on the left bottom)***
   Satellite broadcasting signal input socket for the first tuner (TUNER 1). Connects a satellite antenna LNB cable.
2. ***LNB OUT***
   Satellite broadcasting signal output socket through the first tuner (TUNER 1). Connects to another STB for loop-through.



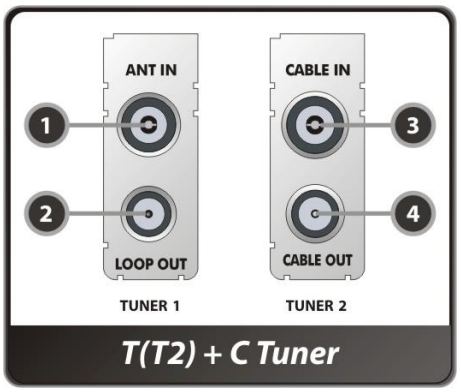
[TUNER 2]

3. ***CABLE IN***
   Cable broadcasting signal input socket for the second tuner (TUNER 2). Connects a cable antenna.
4. ***CABLE OUT***
   Cable broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

➢ ***In case of T(T2) + C***

[TUNER 1]

1. ***ANT IN***
   Terrestrial broadcasting signal input socket for the first tuner (TUNER 1). Connects a aerial antenna.
2. ***LOOP OUT***
   Terrestrial broadcasting signal output socket through the first tuner. Connects to another STB for loop-through signal.



[TUNER 2]

3. ***CABLE IN***

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Cable broadcasting signal input socket for the second tuner (TUNER 2). Connects a cable antenna.

4. ***CABLE OUT***

Cable broadcasting signal output socket through the second tuner (TUNER 2). Connects to another STB for loop-through.

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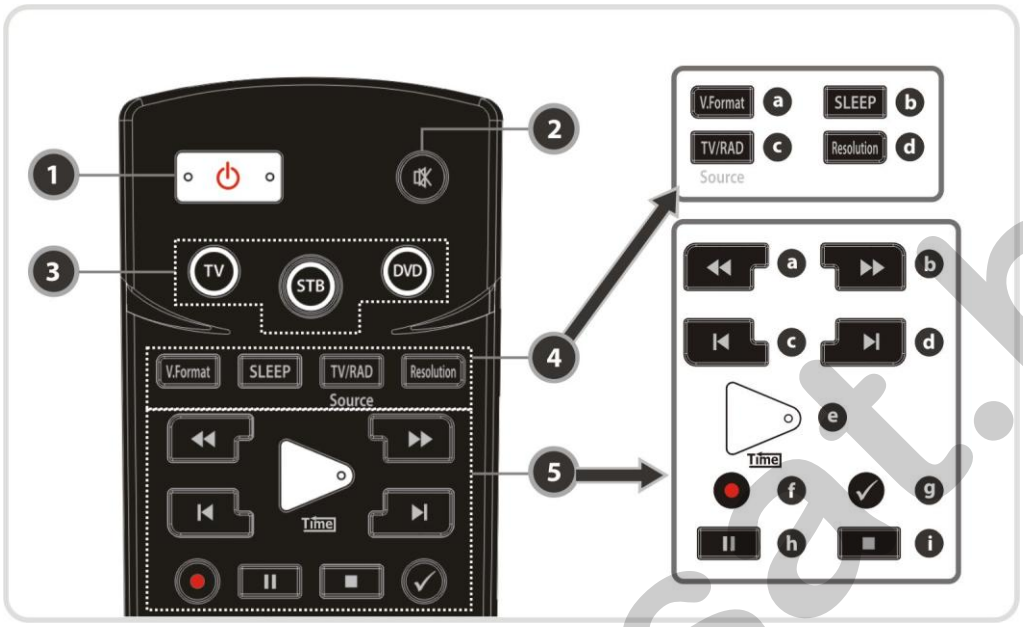
4. Remote Control Unit



1. ***POWER*** : Turns the STB On/Off.

2. ***MUTE*** : Turns the sound On/Off.

3. ***Universal Buttons***
   a. ***Universal TV*** : Change the TV Remote Controller.
   b. ***STB*** : Change the STB Remote Controller.
   c. ***Universal DVD*** : Change the DVD Remote Controller.

4. ***MODE***
   a. ***V.Format*** : You can switch the Display Format (4:3 / 16:9)
   b. ***Sleep*** : To adjust sleep timer.
   c. ***TV/RADIO*** : Switches between TV and Radio.
   d. ***Resolution*** : To select the resolution format. Each time you press the **Resolution** button, the resolution changes in the following sequence: ***576i > 576p > 720p > 1080i > 1080p***

5. ***Playback Control Buttons***
   a. ***Rewind*** : Rewinds at high speed. Each time you press this button the rewind speed is increased.
   b. ***Fast Forward*** : Fasts forward at high speed. Each time you press this button the speed is increased.
   c. ***Previous File*** : To play the previous MP3 file in MP3 play mode. This button is also used to jump back to beginning of recording during a playback.
   d. ***Next File*** : To play the next file. This button is also used to jump to end of recording during a playback.
   e. ***Play / Time shift*** : Display the progress bar of playback when no progress bar is displayed. Start playback with normal speed. Return to normal speed from trick mode..
   f. ***Recording*** : To start Recording.
   g. ***Repetition (*)***: This key is used to play back a recording repeatedly.
   h. ***Pause*** : This key is used to pause the video. Press once more to resume the video.

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i. ***STOP*** : To stop time shifting, play back or recording.

NOTE : (*) This button(Repetition) will be supported later, by new s/w version by upgrading. Please refer to your local dealer / distributor.

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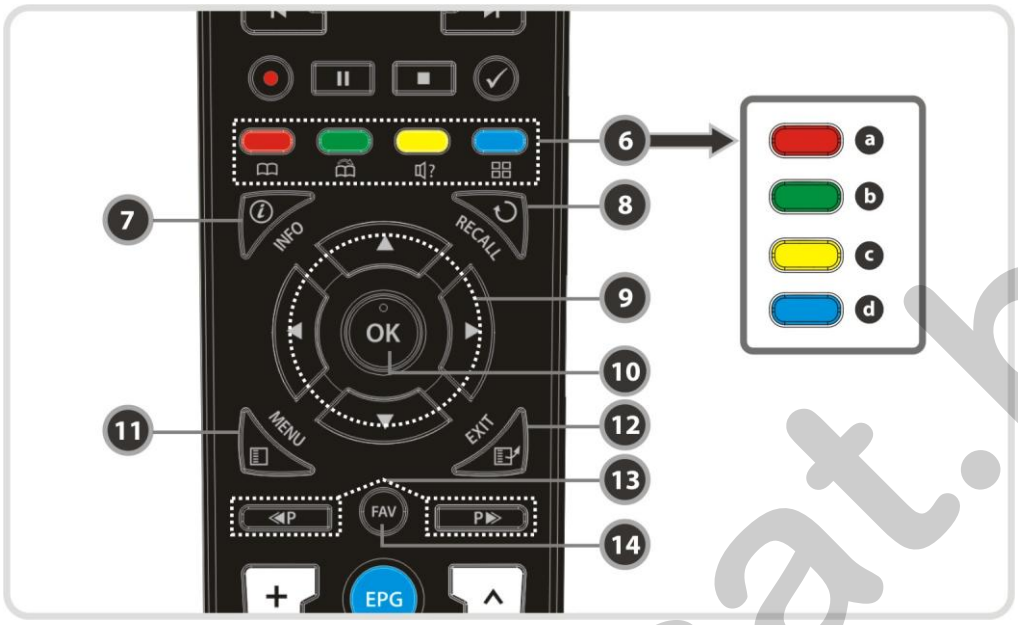

6. ***Color Buttons***
   a. ***RED*** : Used for special function in menu. **RED** key is used to sort lists in service list or go to previous day search in EPG or make/delete the current position as a bookmark.
   b. ***GREEN*** : Used for special function in menu. **GREEN** key is used to set favorites setting in service list or go to the next bookmark position.
   c. ***YELLOW*** : Used for special function in menu. **YELLOW** key is used to find service in service list or change the audio track.
   d. ***BLUE*** : Used for special function in menu. **BLUE** key is used to set service list option in service list or display ***Multi-Picture.***

7. ***Information*** : Shows the information box of the current program. If you press one more time, a detail information box will be shown.

8. ***Recall*** : Moves to previous service.

9. ***ARROW Buttons***
   a. ***Up & Down Key*** : To change the value of a selected item with preprogrammed values in menu.
   b. ***Left & Right Buttons*** : To move the cursor left and right in menu.

10. ***OK or Service List*** : Show the service list in non-menu mode and select an item or confirm in menu mode.

11. ***Menu*** : To enter the main menu or to move to the previous menu.

12. ***EXIT*** : Exit from the menu or pop-up window.

13. ***Page Up& Down*** : Move to the next or previous page if more than one page is available. This button also is change the location of sub picture in PIP.

14. ***Favorite*** : To display the satellites programmed into the receiver and the favorite groups.

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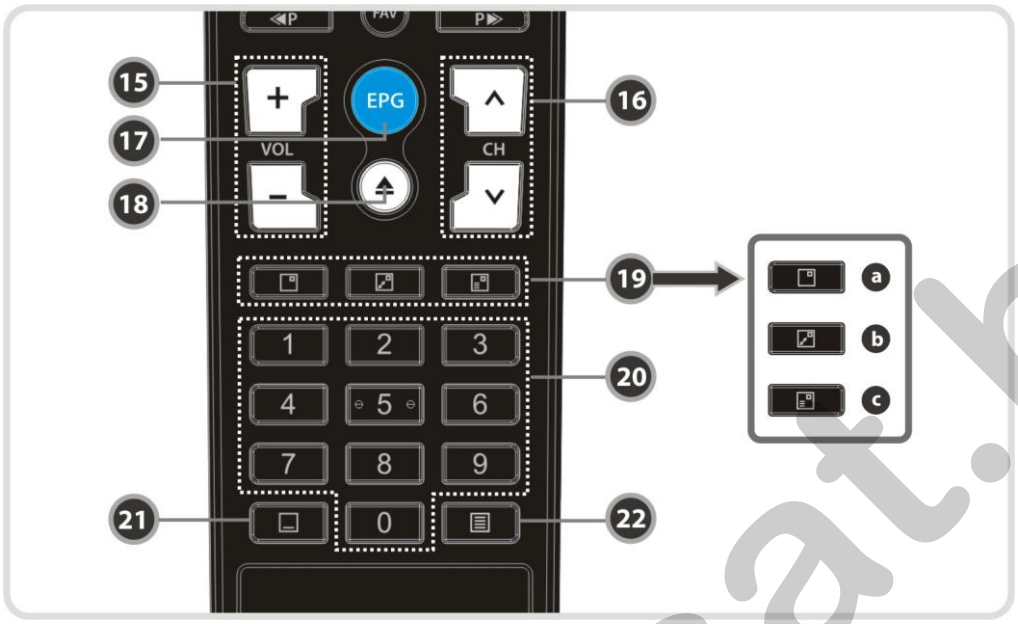

15. Volume Up & Down : To change the Volume.

16. Channel Up & Down: To change the TV or Radio service channel.

17. EPG(Electronic Program Guide) : Show the TV/Radio program guide.

18. Play List : To show the file list in the SATA HDD or USB Storage Device.

19. PIP Buttons

a. ***PIP(Picture in Picture)*** : To open the PIP window.
b. ***PIP Swap*** : Switching between main-picture and sub-picture
c. ***PIP(Picture in Picture) Service List*** : To shown the sub-picture service list.

20. Numeric : Controls the numerical operation and service numbers directly.

21. Subtitle : To show multilingual subtitle.

22. Teletext : To show the digital teletext.

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5. Multi-Brand IR Remote Controller Setting

NOTE : When there is no input during about 10 seconds from set mode, set mode is canceled.

1. Direct Code Entry

Step 1 : Turn on the **DEVICE** what you want to set up(TV / DVD / VCR)
Step 2 : Press **DEVICE** and **OK** button during about 2 seconds at the same time.
✓ ***DEVICE LED will blink twice.***
Step 3 : Input the 3 digit code numbers.
(Refer to ***'Code Table for Universal Remote Control Unit'*** *in the rear section of this manual*)
✓ ***DEVICE LED will blink twice and the DEVICE turns off.***
✓ ***If you enter a wrong DEVICE code, DEVICE will blink once***
Step 4 : If your DEVICE turns off, press **OK** button.
✓ ***DEVICE LED will blink twice.***

2. Auto Code Search

Step 1 : Turn on the DEVICE what you want to set up(TV, DVD)
Step 2 : Press **DEVICE** and **OK** buttons during about 2 seconds at the same time.
✓ ***DEVICE LED will blink twice.***
Step 3 : Press **UP** or **Down** button within 10 seconds to enter the Search mode.
Step 4 : Press **UP** or **Down** button until the **DEVICE** turns off, one and one.
Step 5 : If your DEVICE turns off, press **OK** button.
✓ ***DEVICE LED will blink twice.***

3. Code No. Checking (Number Call)

Step 1 : Press **DEVICE** and **OK** buttons during about 2 seconds at the same time.
✓ ***DEVICE LED will blink twice.***
Step 2 : Press **INFO** button within 3 seconds.
✓ ***LED will blink according to inputted mode number on the device.***
(Case of digit '0', it blinks 10 times.)

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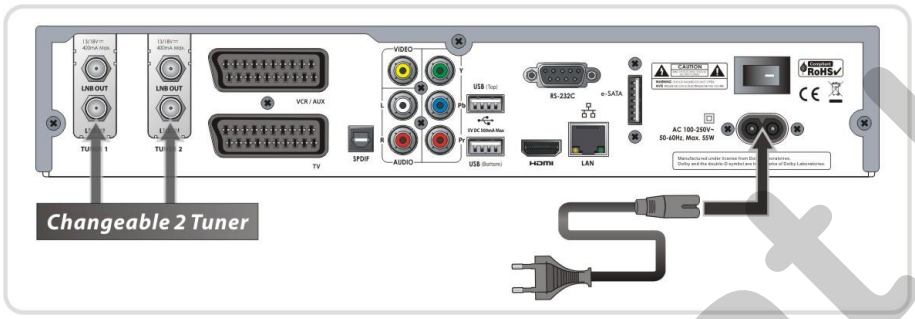
Connecting diagram

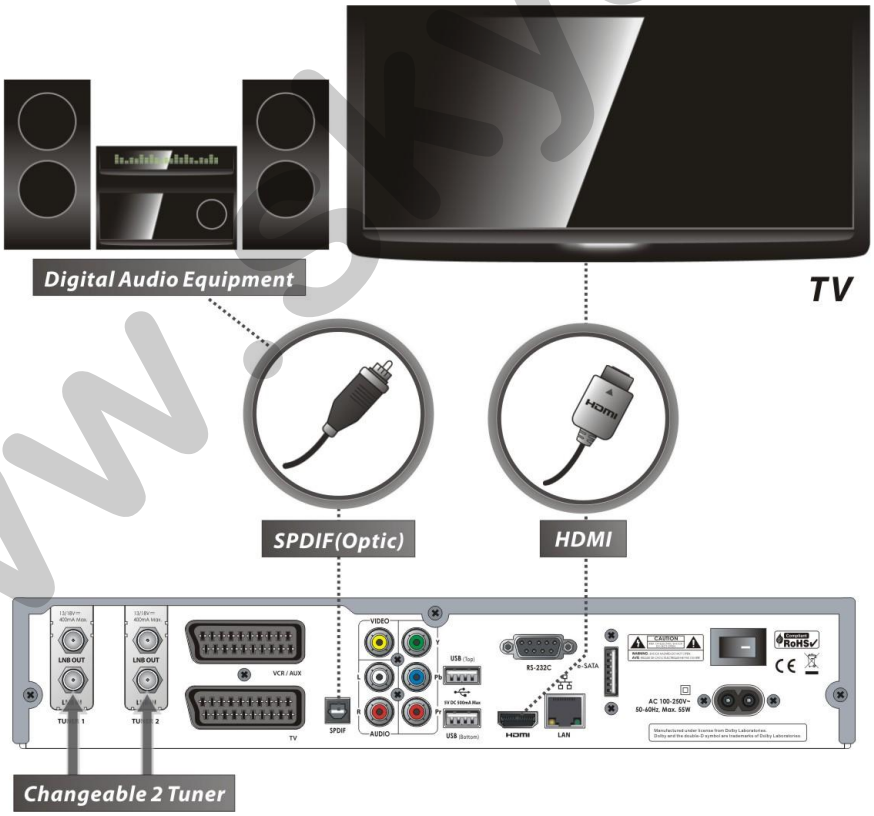
1. Receiver to A/C power

- **Connect the A/C power cord between A/C power cord socket of receiver and A/C outlet.**



2. Receiver to TV with Digital A/V Output

- Connect the HDMI Cable to the HDMI Connector of the TV.
- Connect SPDIF to Digital audio input of the equipment(Digital Audio)



NOTE : Depending on the A/V equipment you own, there are various ways you can connect the STB. To choose the best connection option, please refer to the manual of the equipment you would like to connect to. To get High Definition playback of High Definition content, we recommend that you connect your high definition display with a HDMI cable. HDMI supports standard, enhanced or high-definition video

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and multichannel audio in a single cable.

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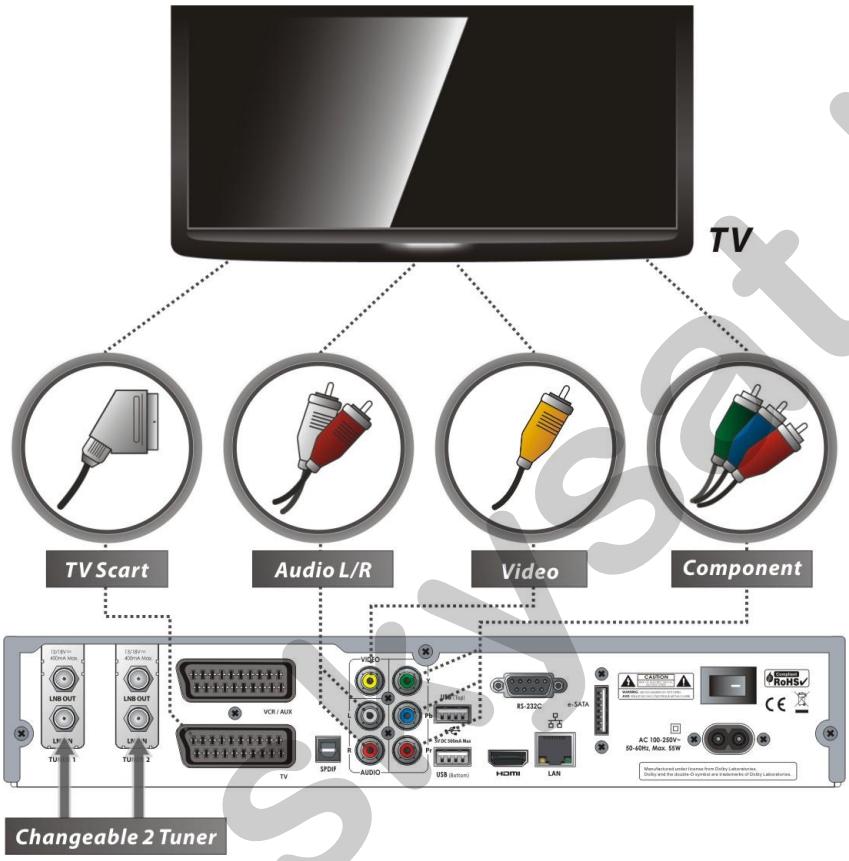
3. Receiver to TV with Analog A/V Output

- Connect the TV SCART to the SCART input of the TV.
- Connect the Component to the Component input of the TV.
- Connect the RCA to the RCA input of the TV.



NOTE : The component connection(YPbPr) is recommended for Digital TV.
The SCART cable connection is recommended for analogue TV or VCR
The composite connection(RCA cable) is recommended for analogue TV
You cannot view high definition video with the SCART and the composite video connector.

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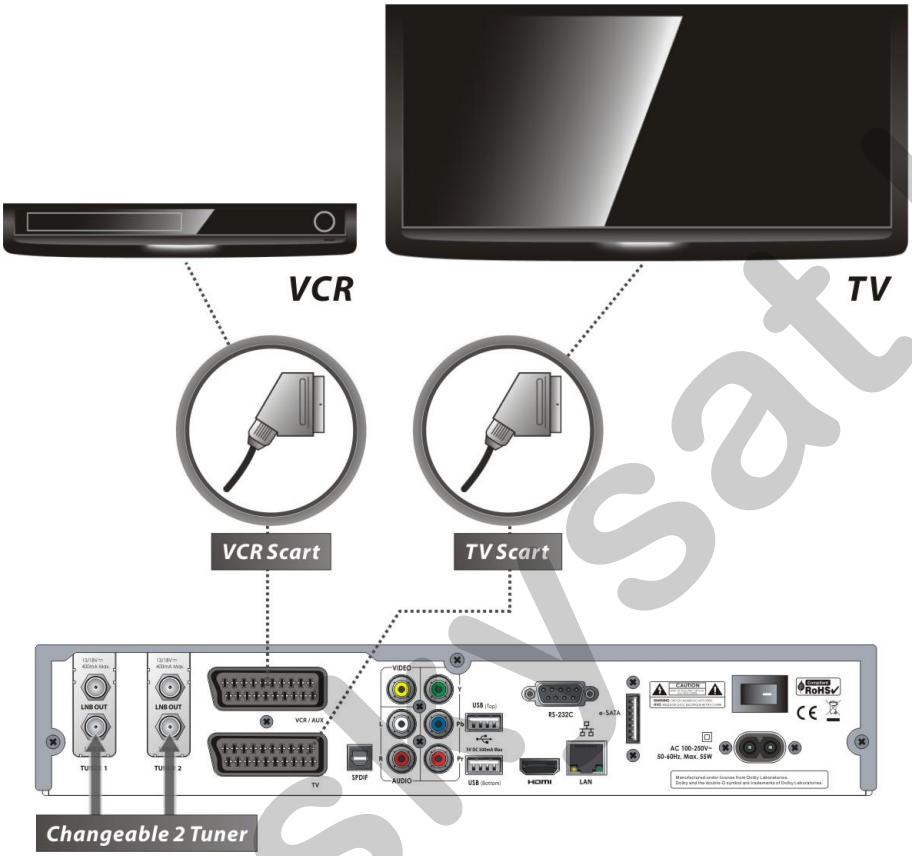
4. Receiver to TV and VCR

- Connect the TV SCART to the SCART input of the TV.
- Connect the VCR SCART to the SCART input of the VCR.



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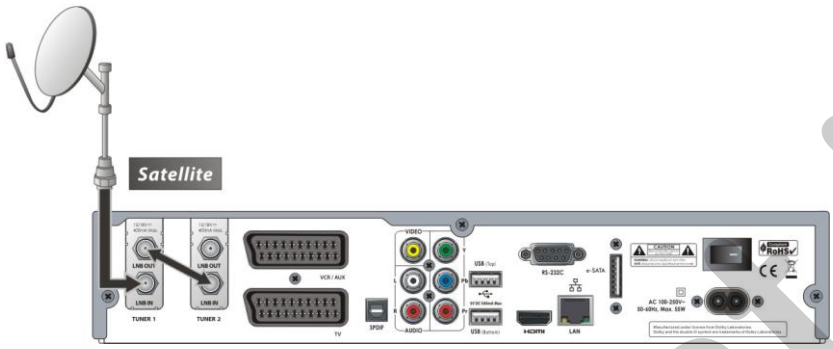
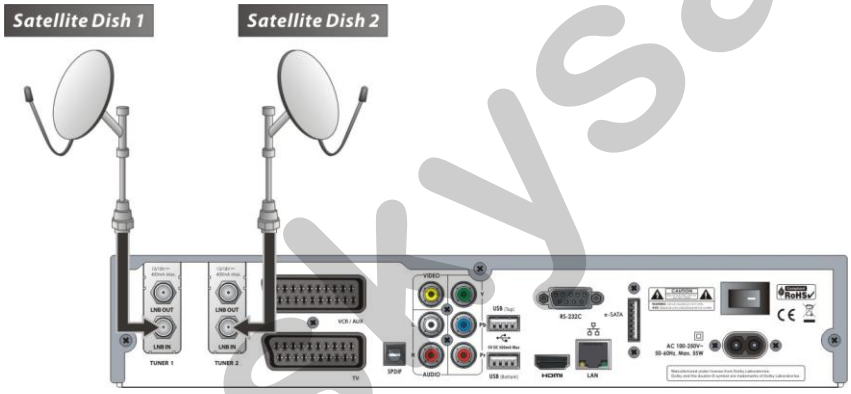
5. Connecting to Antenna Cable

5.1 In case of S2 + S2 (Satellite + Satellite) tuners

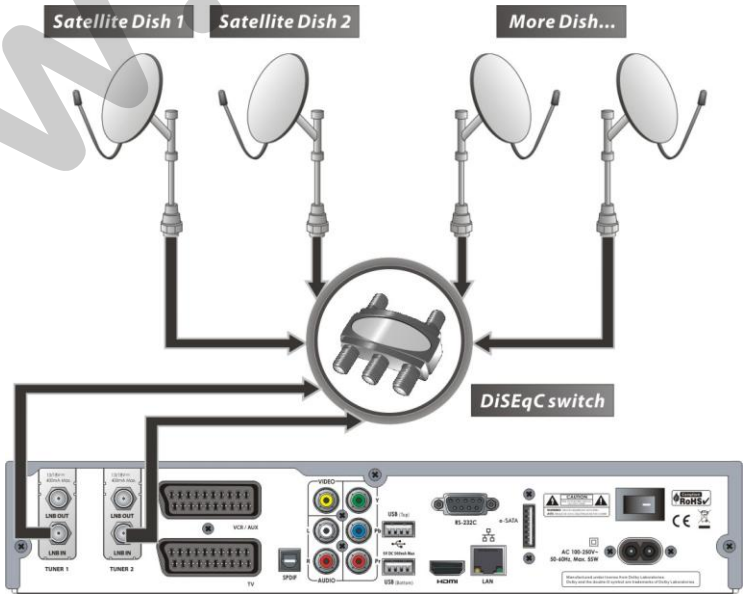
- Connecting one dish to both tuners by Loop through



- Connecting each Dish to each Tuner



- Connecting Antenna cable to each Tuner using DiSEqC SW (Recommend)



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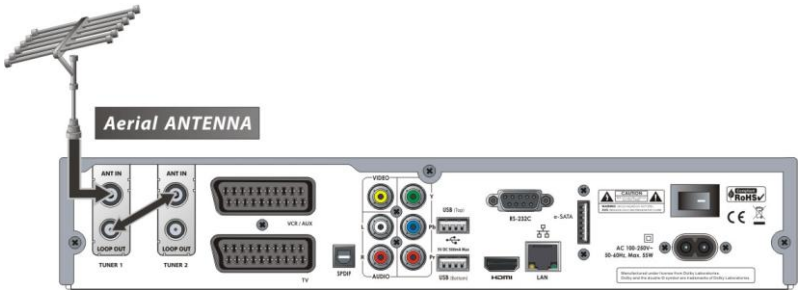
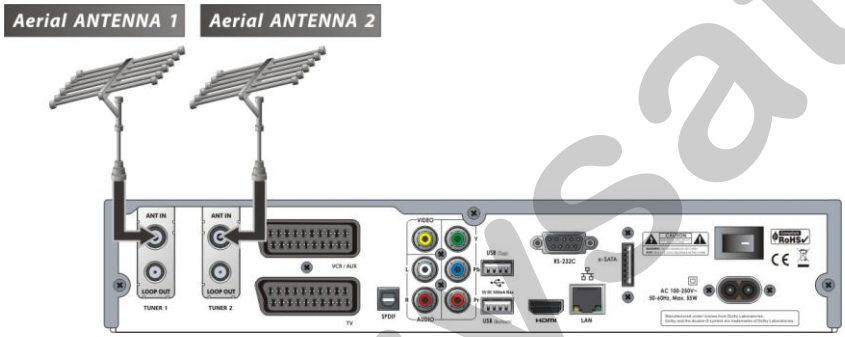
5.2 In case of T(T2) + T(T2) (Terrestrial + Terrestrial) tuners

- Connecting one aerial antenna to both tuners by Loop through

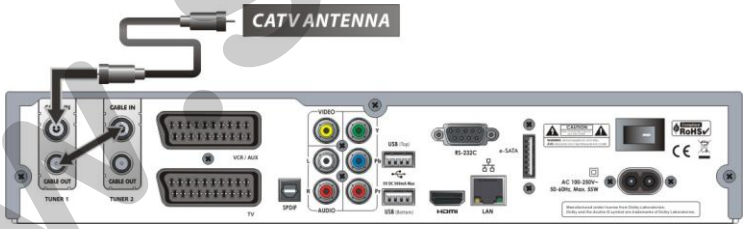


- Connecting two aerial antenna to each Tuner

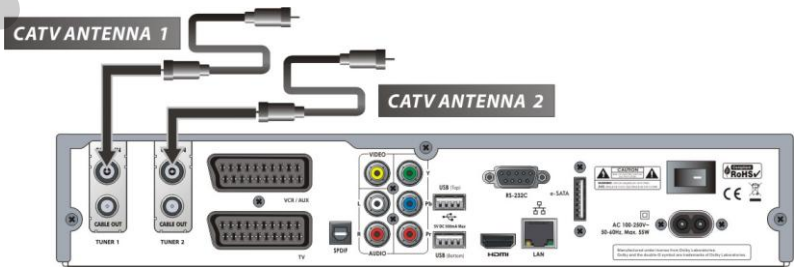


5.3 In case of C + C (Cable + Cable) tuners

- Connecting one broadcasting cable to both tuners by Loop through



- Connecting two broadcasting cable to each Tuner



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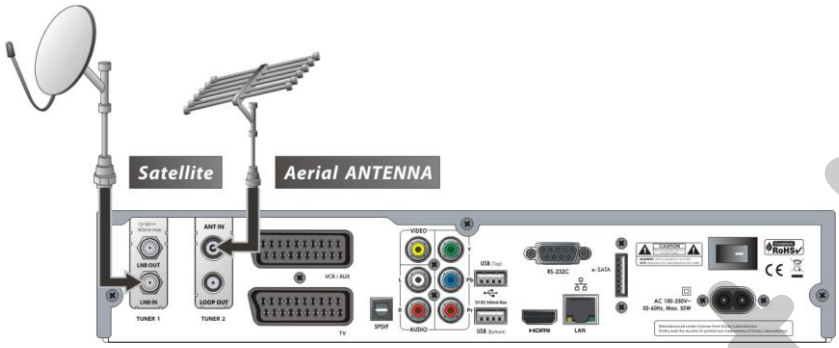
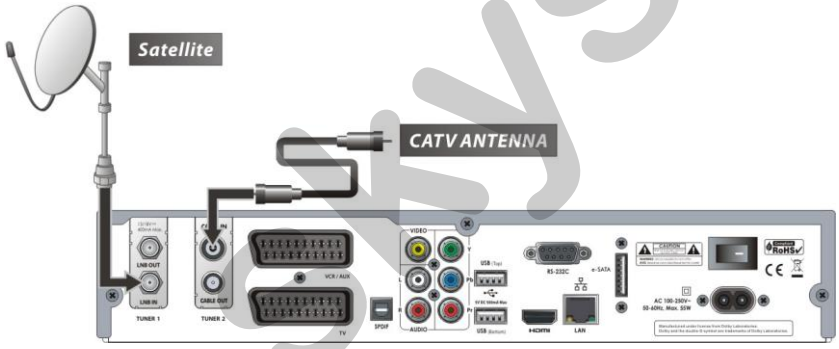
5.4 In case of S2 + T(T2) (Satellite + Terrestrial) tuners

- Connecting dish antenna to LNB IN of the tuner
- Connecting aerial antenna to ANT IN of the Tuner



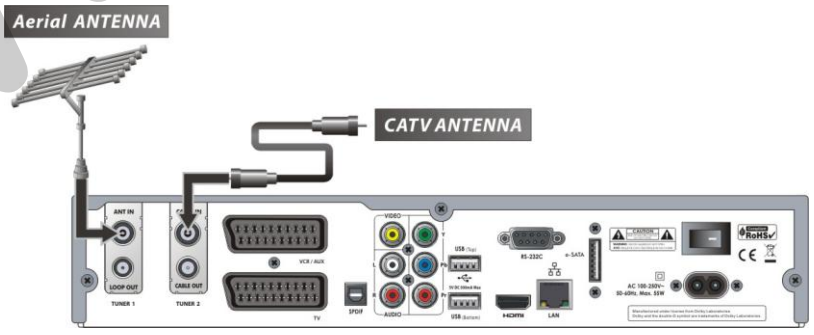
5.5 In case of S2 + C (Satellite + Cable) tuners

- Connecting dish antenna to LNB IN of the tuner
- Connecting broadcasting cable to CABLE IN of the Tuner



5.6 In case of T(T2) + C (Terrestrial + Cable) tuners

- Connecting aerial antenna to ANT IN of the Tuner
- Connecting broadcasting cable to CABLE IN of the Tuner



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Guide of Functions

1. Selecting a Service

To select the desired service (channel), please refer to the instructions below.

1.1 Using CH UP/DOWN buttons

You can navigate between services by pressing **CH UP/DOWN** buttons. Whenever you press the **CH UP(DOWN)** button, current service will be changed to next/previous service. Please press **CH UP** or **CH DOWN** button until you fine the service you want to watch.

1.2 Using Service List

To select the desired service in the service list, you should firstly display the service list by pressing the OK button.
Use the ARROW buttons to select a desired service and press the OK button.
You can see that the service is changed in the small screen on the top-right.
To watch that service, press the OK button once more.
To watch the previous service, press the EXIT button.
In the Service List window, you can also select additional functions with the COLOR buttons. Press the RED button, and you can sort the services by the Alphabet, Transponder(TP), Group, Tuner and CAS (Conditional Access System).
Press the GREEN button, and you can add the services to one of 10 Favorite List.
Press the YELLOW button, and you can search & find the service via a virtual keyboard.
Press the BLUE button, and you can adjust service list option.

NOTE : If you connect the tuner with a loop-through, you cannot use the sort list option.

1.3 Using Simple Service List

- If you press NUMERIC buttons or **UP/DOWN ARROW** button, instant service list will be displayed.
- Select the desired service by using the **ARROW** button, and press **OK** button to watch.
- You can also enter the service number directly by using the **NUMERIC** button.

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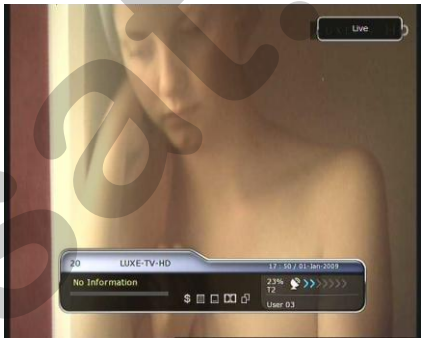
1.4 Using Recent Service List

- To display recent service list, press the **RECALL** button for a short time.
- To return to the previous service that you were watching, press **RECALL** button twice or for a longer time.
- Choose the service from the recent service list, use the **ARROW** button to select, and then press the **OK** button.
- Press EXIT button to exit from the recent service list.

2. Information Window



If you want to view the information of the current service that you are watching, press **INFO** button. Then the Information window will be displayed.

This Information window is automatically displayed when changing between the services.

This window contains much useful information such as service number, service name, scrambled types of service, teletext, subtitle, Audio indication for Dolby Digital, Time duration of the service and so on.

By pressing **INFO** button once again, you can get more detailed information about the service.

3. Multi-Picture Display.

Press the **BLUE** button to display multiple pictures and use the **RED** button to select the display options for 9 or 12 multiple pictures.

4. Electronic Program Guide (EPG)

Electronic Program Guide (EPG) allows you to see program schedule and program information from the service which includes this data as part of their transmission. Multiple services will be shown with a time line of programming events. The EPG supplies additional information of channel service, such as program listings, start/end times and detailed information about the program listings for all available services. The availability and details of information of these program details can be varied, depending on the particular broadcasters, individual services.

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- Press the **EPG** button, then the EPG menu will be displayed.
- Use the **ARROW** buttons to move to other services or to see previous/next guide.
- Press the **EPG** button once to view full EPG with multi service list, and press it twice to view the additional EPG information of a specific channel service. Keep pressing the **EPG** button to toggle between the full and detailed menus of EPG.
- Press the **GREEN** button to view next day EPG and the **RED** button to view EPG for a previous day.
- Select the program by using the **ARROW** buttons then set the event timer by pressing **OK**.
- You can schedule a recording with the EPG menu as follows.
  - Press **RECORD** button to schedule the event. This schedule can be checked in the menu of Timer Settings, in the System tool menu.
  - To cancel the schedule of the recording, press the **OK** button for the appointed event.
  - To edit the schedule of the recording, press the **RECORD** button for the appointed event.

5. Favorite Group

Press the **FAV**(Favorite) button to view all favorite groups such as sports, movie, drama, satellite group and so on. Scroll through the various favorite group using the **UP/DOWN ARROW** buttons, and select the desired favorite group by pressing **OK** button.

6. Volume Control

- To adjust the audio volume, press the **VOL UP/ DOWN** buttons.
- Audio volume control bar will be displayed at the top of the screen and disappear after 4 seconds.
- When necessary, press the **MUTE** button to turn on/off the audio sound.

NOTE : The mute function remains set while you change services.

7. Pause

PAUSE button is used to freeze the video. Press PAUSE button once more to resume the video.

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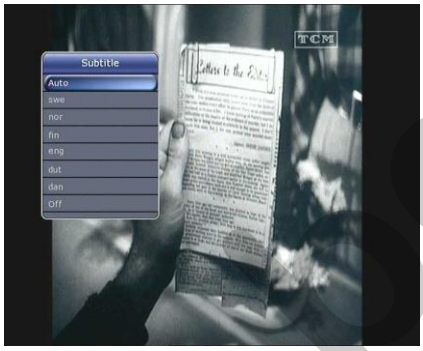
8. Subtitle

You can select the language for a Subtitle, if the program provides subtitle information.



- Press the **SUBTITLE** button on your remote control unit.
- Select the desired subtitle language then press **OK** button.
- The subtitle will be displayed in the selected language at the bottom of the screen.
- To turn OFF the subtitle from the screen, Select ***'Off'*** from the subtitle language list.

NOTE : When program does not provide subtitle information, SUBTITLE button will not be active.

9. Audio Control

Press **YELLOW** button on live TV service to display Audio Control menu. You can set ***Audio Track / Sound Mode / Sound Level.***

- **Audio Track :**
  You can see all the audio track of the service you are watching. Use the ARROW buttons to choose the preferred audio track. If you select Auto, audio track will play as what you set for audio language in language setting menu.

- **Sound Mode :**
  To set sound mode, ***Stereo / Mono / Left / Right.***

- **Sound Level :**
  To set sound level, ***Low(-30%) / Normal / High(+30%) / Off.***

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10. Teletext

When the ***TELETEXT icon*** on the INFO Banner, press the **TELETEXT** button to view the teletext.

11. PIP (Picture in Picture)

- When you press the **PIP** button, a sub picture screen will appear on the main screen view.
  If you press the **PIP** button one more time, the primary picture and the sub picture will appear together side-by-side with the same size. The picture of the left side is the primary and the picture on the right side is sub. If you press the **PIP** button one more time, the sub picture will disappear.

- In the PIP mode, you can change primary and sub with the **PIP SWAP** button.

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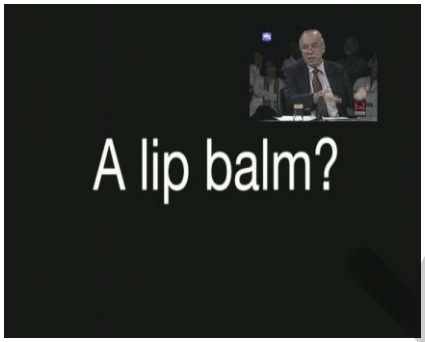
- If you press the **PAGE UP/DOWN** button, the location of the sub picture is changed.



- If you press the **PIP SERVICE LIST** button, you can see the list of services of sub picture.
  You can change the service of the sub picture from the service list shown.

  NOTE : Changing services of sub the picture could be limited by the condition of the tuner connection or a recording event ongoing.

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PVR (Personal Video Recorder) Function

1. Recording

You can select a recording storage device with the following sequence : ***Menu*** > ***Configuration*** > ***Recording Option*** > ***Record Device.***
Default is set to ***'Hard Disk'***.

1.1 Recording methods

There are 3 type recording methods.
(Instant Recording / Time Scheduled Recording / Event Scheduled Recording).

- **Instant Recording :**
  You may press the **RECORD** button to start your recording instantly at anytime.

- **Time Scheduled Recording :**
  - In Timer Settings menu, you may set the time & program to record your desired service program.
    (Go to Main Menu > System Tools > Timer Settings)

  - Press the **GREEN** button to activate the new timer edit screen.
  - In the Timer Edit screen, you may choose start date/time, duration, service, mode, type (Recording/Play), Tuner (Auto/1/2) then simply press the ***Yes*** button to schedule your recording event. Please note that the minimum offset time of 3 minutes is required from the Start time & current time for appropriate recording process to take place.

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- **Event Scheduled Recording via EPG :**
  - In the EPG menu screen, you can choose the event you wish to schedule or record.
  - While watching the LIVE TV screen, press the **EPG** button to access the EPG menu screen.

  - Go to the event which you wish to view at the time indicated on the EPG schedule, then press **OK**. The event will be scheduled with the ***BLUE play icon***. This BLUE play icon means that you want to just watch the event at the scheduled time.

  - Press the **OK** button one more time, then the event will be scheduled with the ***RED dot icon***. This RED dot icon means that you want to record the event at the scheduled time.

  - When you set an event for scheduled recording via the EPG menu. It automatically sets a Timer Event in the ***Main Menu > System Tools > Timer Settings.***

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1.2 Recording Edit

Press the **REC** button while recording to see the recording message window.

- **Pause :** Select ***Pause Recording*** then press **OK** to pause the current recording process.
- **Duration :** Set recording duration. Press **LEFT/RIGHT ARROW** button to change recording duration.
- **Stop Position :**
  Set the finishing time of recording.
  - ***End of current event :*** finish recording at the end of current event
  - ***End of next event :*** finish recording at the end of next event.
  - ***Not Available :*** EPG is not available.

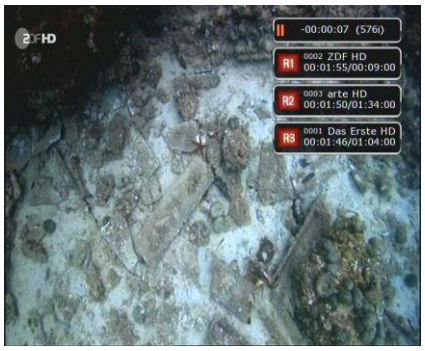
- **Record Slot :** When you are recording 3 services, you can select Primary / Secondary / Tertiary by pressing **Left/Right Arrow** button, then go to Change Service and press **OK** button to show that recording service.

1.3 Long Time recording

During lengthy time recording processes of 4GB(Giga Byte) or more, additional files may be created per every 4GB. ***(For example; aaa.ts, aaa.ts1, aaa.ts2… and so on).***
You must remember not to delete any of duplicated file. These files are only able to be viewed with your PC not with the receiver (STB).

1.4 Pause during recording

- When the **PAUSE** button is pressed during recording, only the live video is paused, but recording is continued at the selected recording device.
  (Menu > Configuration > Recording Option > Record Device)



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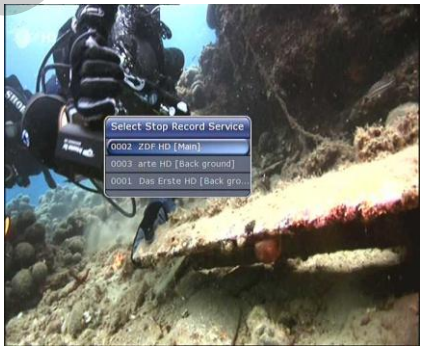
- Press **PAUSE** button once again and event will resume from the pause time.
- During recording, press the **PLAY/TIMESHIFT** button to show the Play bar screen.

- While the Play bar is shown on your screen, you may use the **LEFT/RIGHT Arrow** button to move (forward & backward) freely within recorded time.
- If you press **YELLOW** button in the Play bar, you can set the Position Jump time at ***Auto / 10sec / 30sec / 1min / 2min / 4min / 10min.*** Then press **LEFT/RIGHT Arrow** button to jump as you set the time.
- If you press the **STOP** button, it will go to LIVE and you may press **PREV FILE** button to view the recorded file from the beginning.

- STB can record up to 3 different services simultaneously.
- When recording 3 services at the same time, you can press the **STOP** button to see a message window of current recording status / information.
  If you select one of the 3 or 2 recordings and press the **OK** button, that recording service will be stopped.
  If you press the **STOP** button during recording 1 service, a recording stop message window will appear. Then select ***YES*** to stop recording.



NOTE : If you want the recording up to 3 services, please format the storage devise with 'NTFS' or 'Journaled(JFS)' file system.
Menu > Storage Manager > Format > File System > select 'NTFS' or 'Journaled(JFS)'.

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2. Time Shifting

You can select a storage device for a temporary file of the Time shifting with the following sequence:
Menu > ***Configuration*** > ***Recording Option*** > ***TimeShift Device.***
Default storage device is set to ***'Hard Disk(internal SATA)'***

- If pressing the **PAUSE** button during Time shift, the live video is paused but the temporary recording for time shift is continued at the selected storage device.

- Press the **PAUSE** button once again, then the event will resume from the paused time.
- While watching live TV, press the **PLAY/TIMESHIFT** button to show the play bar on your screen.

- When the play bar is displayed on your screen, you may use the **LEFT/RIGHT Arrow** buttons to move freely through the recorded times bar.
- If you press **YELLOW** button in the Play bar, you can set the Position Jump time at ***Auto / 10sec / 30sec / 1min / 2min / 4min / 10min.*** Then press **LEFT/RIGHT Arrow** button to jump as you set the time.
- If you press the **STOP** button while time-shifting, the screen will be turned to a live TV channel. You can also use **PREV FILE** button to move to a start location of the Time-shifted file.

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3. Playback (Play List)

You can playback many files with the Playlist which you access by the **PLAYLIST** button.
In the Playlist, you can check and playback ***recorded files, multimedia movie files, MP3 music files,*** and ***image files.*** With the **LEFT/RIGHT ARROW** button, go to the ***Recorded Files, Imported Files, Music*** and ***Photo*** category and check & for playback files in each category.
If press the **PLAYLIST** button, you can see all playable files. In this mode, **Green** button is not in operation (not working). And when you select the file, you will not be able to select the different types of file format files together at once.
You can press **LEFT/RIGHT Arrow** button to move to ***Recorded Files / Imported Files / Music / Photo / Play List menu.***

3.1 Recorded Files

- If you press **RIGHT Arrow** button in Play List, you can go to Recorded Files menu.
- Locate the recorded file(s) you wish to play with the **UP/DOWN** button and press the **OK** button to playback the recorded file(s).
- To choose a particular selection of files, select a desired file and press the **RED** button. Press the **OK** button to begin the selected files.

- **Select Device** : Press **PLAYLIST** button one more time in the Playlist mode to see ***"Select Device"*** window, and select the device which has the file you want to play.

  NOTE : "Select Device" window shows devices which are currently connected to the STB.

- **Sorting :** If you press the **YELLOW** button, you can sort the files by ***Time / Name / Size / Type.***

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- **File Option :**

  If you press the **BLUE** button, you can select a option for ***Delete, New Folder, Move to Folder, Copy to Device, Rename, Lock/Unlock.*** You can select multiple files together and delete or move all of them at once.
  - ***Delete :*** To delete file(s)
  - ***New Folder :*** To make new folder. Default name of the folder is ***"Group#".***
  - ***Move to Folder :*** To move the selected file(s) to a folder you want. This option is available if there is no folder.
  - ***Copy to Device :*** To copy the file(s) to other storage device. This option is not available if only one storage device is connected.
  - ***Rename :*** To rename the folder or file.
  - ***Lock / Unlock :*** To lock and/or unlock the file with your PIN Code. You must select a file to do this option.

3.2 Imported Files

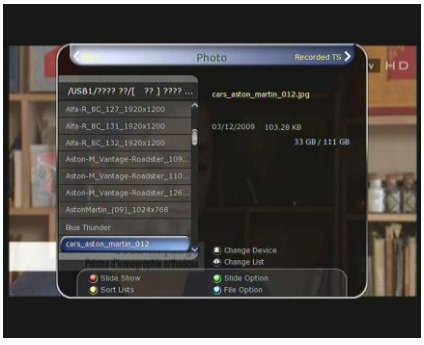
- If you press **RIGHT ARROW** button in Recorded Files, you can go to Imported File menu.
- Locate the file(s) you wish to play with the **UP/DOWN** button and press the **OK** button to enjoy the movie.
- To choose a particular selection of files, select a desired file and press the **RED** button. Press the **OK** button to begin the selected files.
- You can use the same 'Select Device', 'Sorting' and 'File Option' features as in the Recorded Files.

3.3 Music

- If you press the **RIGHT ARROW** button in Imported Files, you can go to Music menu.
- If you press the **RECALL** button, you can enjoy music with Shuffle playback and repeat.

  You can use the same *'Select Device', 'Sorting'* and *'File Option'* features as in the Recorded Files.

3.4 Photo



- If you press the **RIGHT ARROW** button in Music, you can go to the Image Photo menu.
- If you press the **RED** button or **OK** button, you can start the slide show of image files. Press the **EXIT** button to stop slide show.
  - ***RED button :*** Auto Slide show
  - ***OK button :*** Manual Slide show
- If you press the **GREEN** button, you can adjust the Slide Time, Repetition, Title, Down-scale.
- You can use the same ***'Select Device', 'Sorting'*** and ***'File Option'*** features as in the Recorded Files.

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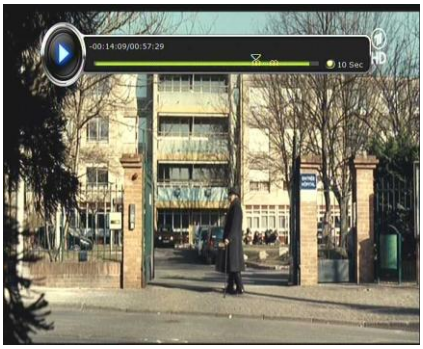
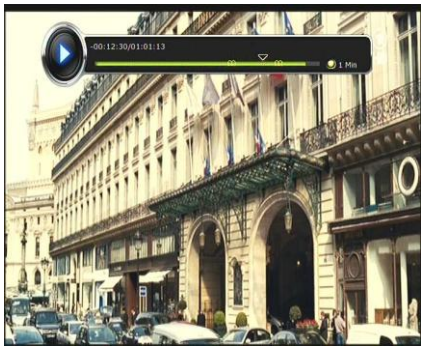
4. Bookmark

- When the Play bar is displayed, you may move to desired time and book mark it by pressing the **RED** button. Bookmark(s) are indicated with a ***Green line*** on the play bar. Also, you may press the **RED** button to activate the play bar to mark your bookmark(s).
- When the play bar is on, user can move / jump between the bookmarks by pressing the **GREEN**



button.

- If you wish to delete any Bookmarks, go to that bookmark by pressing the **GREEN** button, then press the **RED** button to delete the current bookmarks.



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5. Trick mode

- The user can change the speed of a fast forward play with **FF**(Fast Forward) button. Press **FF** button to change the speed to **x2, x4, x6, and x8.** If you once again press **FF** button in its **x8** mode, it returns to normal(x1) speed play.
- You can also change rewind speed with the **REWIND** button. Press **REWIND** button to change the speed to **x2, x4, x6, and x8.** If you press the **REWIND** button again in it is at the **x8** mode, it returns to normal speed.
- You may press the **PAUSE** button at any time to pause a pre-recorded event. Press the **PAUSE** button once again to resume play of the recorded event.

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Menu Map

Main Menu	
 System Tools	1. Storage Manager 2. Timer Settings 3. Service List Manager 4. Data Transfer
 Configuration	1. Recording Option 2. Parental Control 3. Display Setting 4. Time Setting 5. Language Setting 6. A/V Output Setting
 Installation	1. Dish Setting 2. Service Search 3. Terrestrial Search 4. Cable Search 5. Network Setting 6. System Recovery 7. System Information
 Utilities	1. Calculator 2. Calendar 3. CAS 4. Plugin 5. YouTube

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Main Menu of Guide

To display the menu, press the **MENU** button at any time. You can select the sub menus by using the **ARROW** buttons.
The selected sub menu becomes highlighted. After selecting (highlighting) the sub menu you want to access, press the **OK** button. If you want to return to the previous menu, press the **MENU** button. And if you want to exit from the menu, press the **EXIT** button.

1. System Tools

1.1 Storage Manager

The items in this menu allow you to access and control the storage devices that you want.

- **Current Device :** Select the storage device you want to access with the **ARROW/OK** buttons.
- **Status :** You can see the information of current connected devices, such as ***'Mounted', 'Not Available'***
- **File System :** It shows the file system of the current device. You can also select desired file system that you want when you format the device.

  NOTE : NTFS is the recommended file system to format, and it will be also recognized in Windows system

- **Total :** Displays total size of current device.
- **Free :** Displays free size of current device.
- **Format :** If you press the **OK** button to format current device, the device will be formatted with above file system.

  NOTE : When file system is 'Unknown', the device will be formatted with 'NTFS'.

- **Storage Check :** Check the current connected device.
- **Play List :** Press **OK** button to move to ***'Play List'*** menu directly.

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1.2 Timer Settings

Insert a new timer entry or modify an existing timer entry.

- **To add new timer entry :** Press the **GREEN** button. Timer Edit window will popup. You can set the specific start date, time, duration and service for its reservation. And you can choose one of Timer Modes as ***'Once'*** or ***'Daily'*** or ***'Weekly'*.** You can choose timer operation type as '***Recording***' or just to ***'Play'*.**
  - If you choose ***'Recording'***, it will start recording at that time.
  - If you choose ***'Play'***, it will change and tune to the service that you wish to watch.
  - If you set Alarm Confirm Message to ***'On'***, alarm message will activate. Or choose ***'Off'*** to disable.
- **To modify existing timer entry :** Choose the timer entry which you wish to modify and press the **OK** button.
- **To delete an existing timer entry :** Choose the timer entry that you want to delete and press the **RED** button.
- Press **YELLOW** button to enter to Calendar.
- Press **BLUE** button if you want to delete all the event(s).

NOTE : If you reserve one or more event through the EPG menu, the reserved event(s) will be added to Timer Settings automatically.

1.3 Service List Manager

Service List Manager menu will appear when you press the **OK** button.
You can select Edit Mode by pressing the **YELLOW** button.

- **Lock Services :** All service lists will be shown on the left side of the window, the middle will show the list of service to be locked. By using the **ARROW** and **OK** buttons, you may move the chosen service to the middle window to lock that service. Services can also be moved back from the middle to the left side to un-lock them.

- **Move Services :** All service lists will be shown on left side of the window, services to be moved will be shown on the middle window. Move the service to the middle window by using the **ARROW** and **OK** buttons, then the middle window service will be moved to a specified location when the desired location is selected from the left window.

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- **Delete Services :** All service lists will be shown on left side of the window. By using the **ARROW** and **OK** buttons you may select services to be deleted by placing them in the middle window. The press the **GREEN** button to delete the selected services.

- **Skip Services :** All services will be shown on left side of the window, the middle window will only show the services that are chosen to be skipped. By using the **ARROW** and **OK** buttons you may move the selected services from the left to middle window to skip them.

- **Set Favorite Services :** Use the **ARROW** and **OK** buttons to select your desired favorite group. Once, favorite group is chosen, the left side window will show all service lists and the middle window will only show the selected services of the favorite group selected. By using the **ARROW** and **OK** buttons, you may ADD the desired services to a favorite group or DELETE any from the favorite group. The name of the favorite group can be edited by pressing the **GREEN** button.
- You can go to Select Favorite Group by pressing **GREEN** button. In this mode, you can select ***Lock Group / Edit Group Name / Add Group / Delete Group.***

- **Edit Services :** All services name will be shown on the left side of the window.
  Move the highlighted bar to the service where you want to edit its name and press the **OK** button for Edit Service menu. Then move the highlighted bar which you want to edit.
  You can edit ***Service Name, Video Stream Type, Video PID, Audio Stream Type, Audio PID, PCR PID.***

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1.4 Data Transfer

When the data transfer task is in process, the Front USB slot is set to a default device slot. But, if no USB device is connected on a front USB slot, then the Rear USB slot is set as a device to be used for the data transfer process.

NOTE : If no USB device is connected on either two (Front & Rear) USB slots, then a Menu item will not be available.

Data Transfer
Transfer All System data to USB storage
Transfer Service data to USB storage
Data download from USB storage
Remove Device

- **Transfer all System data to USB storage :** If you want to transfer and use BOTH of the current system parameters and service data in the future, this menu will allow you to store all data to your USB device. Press **OK** button to store all current data to an external USB storage.
- **Transfer Service data to USB storage :** If you want to transfer and use ONLY the service data in the future, this menu allows you to store current service data. Press the **OK** button to store the current service data to your external USB storage. The service data can also be viewed and edited on a PC with an appropriate editor (DrEdit) for the file saved.
- **Data download from USB storage device :** This menu allows you to download the saved data from the external USB storage to your STB. Press **OK** button to download data.

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2. Configuration

2.1 Recording Option

- **Alarm Confirm Message** : Turn ***'ON'*** this Alarm message to indicate and show the alert pop-up message when there is a reserved recording event. The alert message will show 3 minutes before the starting time of the reserved recording event.
- **Recording Stop Message** :
  - ***Set 'On' :*** When you press the **STOP** button while recording, then a confirmation window is displayed.
  - ***Set 'Off' :*** When you press the **STOP** button while recording, the STB will stop the recording process immediately / instantly without asking the additional confirmation from the user.
- **Extra Recording Time Before(Start) & After(Finish)** :
  - You can add an extra recording time before start / after finish ***(1min /2min /3min /4min /5min/ 10min/ 15min/ off)*** to scheduled recording events. If you set an extra recording time by using the **ARROW** and **OK** buttons, the scheduled recording event will have a ***'Start' / 'Finish'*** time of additional recording time added to the basic event. This option only works for real time events. But, when you schedule a service recording in the Timer Settings menu, this option has no affect.
- **TimeShift Start** : You can choose the method of TimeShift function.
  - ***Auto :*** TimeShift function is automatically activated.
  - ***Off :*** TimeShift function will be disabled.
  - ***Manual :*** TimeShift will be activated when the **Pause** key is pressed.
- **TimeShift Duration** : You can adjust TimeShift duration in 30 minute intervals. ***(Off /30min /60min /90min /120min).*** This duration defines the maximum time length of the TimeShift as long as the storage device has enough memory space left.
- **Playback Position Jump** : When you use **LEFT/RIGHT ARROW** button to move back/forward through the recorded time bar, You can select the time intervals. ***(10 Sec / 30 Sec / 1Min / 2 Min / 4 Min / 10 Min / Auto).***
- **Playback Numeric Function** : This selection of function defines the operation type of the **NUMERIC** buttons of your remote control unit (RCU) while the ***'Playbar'*** is displayed on the screen.
  - ***Commercial Skip :*** When the **NUMERIC** buttons (1 to 9) are pressed the video will move forward according to the **NUMERIC** buttons pressed. For example ; when ***'1'*** is pressed, 1min move forward, ***'5'*** is pressed, 5min move forward from current position. When ***'0'*** is pressed, it will move back for 1minute.
  - ***Percentage Move :*** When the **NUMERIC** buttons are pressed, the video will move to the location of that % percentage of numbers pressed. For example ; if you press ***'10'***, you will move to the 10% location of the total video length. If you press ***'99'***, you will move to the end of the video clip recorded.
- **TimeShift Device :** You can select the TimeShift Device you wish to use.
  - Hard Disk, USB1(Front), USB2(Rear Top), USB3(Rear Bottom), Network Drive.
- **Record Device :** You can select the Recording device you wish to use.
  - Hard Disk, USB1(Front), USB2(Rear Top), USB3(Rear Bottom), Network Drive.
- **SATA Disk Select :** You can choose between Internal, or External SATA disk connected.

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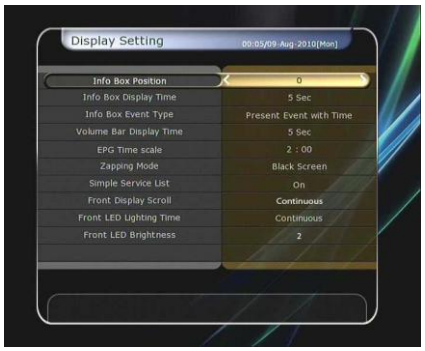
2.2 Parental Control

User's access rights to a service and programs are controlled by a 4-digit secret code that is defined by the user. Whenever you attempt to access the parental control menu, a pop-up window will ask you to input a ***PIN code.*** (If necessary, you can change it.)

NOTE : The default PIN code is '0000'

- **Censorship :** Set the parental guidance rating of highlighted censorship classification. The parental level is given as an age-based number.
- **Change Pin code :** To change your PIN code, input the new PIN code using the **NUMERIC** buttons. To verify the new PIN code, input the new PIN code again.
- **System :** Set the access rights to the System menu.
- **Installation :** Set the access rights to the Installation menu.
- **Configuration :** Set the access rights to the Configuration menu.
- **Edit Service** : Set the access rights to the Edit menu.
- **Plugin** : Plugin Set the access rights to the Plugin menu.

2.3 Display Setting



- **Info Box position :** Set a position of the information window.
- **Info Box Display Time :** Set the time duration of the information window being displayed on the screen after changing services.
- **Info Box Event Type :** Set the event type that display in left bottom part of the information window.
  - ***Present Event with Time :***
    Display the present event name with time. (Default)
  - ***Present and Follow Event :***
    Display the present and following event name.
- **Volume Bar Display Time :** Set the time duration of the volume bar being displayed on the screen after changing audio volumes.
- **EPG Time scale :** You can set the time scale in hours which is displayed for a program in the EPG window.
- **Zapping Mode :** You can set the zapping mode as follows (zapping mode is when changing services).
  - ***Black screen :*** Display a black screen when changing between services.
  - ***Freeze :*** Display the last still picture when changing services.
- **Simple Service List :** To set the simple service list ***'On'*** to display or ***'Off '.***
  - ***On :*** Press **UP/DOWN ARROW** button to display the simple service list while watching live TV.
  - ***Off :*** If you set Off, channel Up/Down when you press **UP/DOWN ARROW** button.
- **Front Display Scroll :** You can set how the VFD Display Scrolls.
  - ***Once :*** Scroll the service name only once.
  - ***Continuous :*** Continually scroll the service name, if the letters of the service name is over 12 characters.
  - ***Off :*** Scroll off.

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- **Front LED Lighting Time :** You can adjust the lighting time of the front LED.
- **Front LED Brightness :** You can adjust brightness of the front LED with 4 steps. By setting ***'off'*** this option, will turn off the front LED lighting.

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2.4 Time Setting

- **Time Setting :** To set the current time, you can use two modes; ***Auto*** or ***Manual***.
- **Local Offset** : Enter the offset value by using the standardized information of current service area.
- **Daylight Saving :** If you want to apply daylight saving, select the counter by using the **ARROW** buttons.
- **Clock Mode :** Select the type of clock display(12 Hours or 24 Hours) using **ARROW** buttons.
- **Wake Up Mode :** Enter the time for the receiver to automatically power ***ON.*** And you can choose one of Wake Up Mode as ***'off'*** or ***'Once'*** or ***'Daily'*** or ***'Weekly'.***
  - ***Wake Up Date :*** Select the date when the STB is turn on. Press the **OK** button to display calendar.
  - ***Wake Up Days :*** Select a day of the week when the STB is turn on.
  - ***Wake Up Time :*** Enter the wake up time of the STB using the **NUMERIC** buttons.
  - ***Wake Up Service :*** Select the service when the STB is turn on. Press the **OK** button to display the service list.
- **Sleep Mode :** Enter the time for the receiver to automatically switch ***OFF*** and go to standby mode. And you can choose one of the Wake Up Mode as ***'off'*** or ***'Once'*** or ***'Daily'*** or ***'Weekly'.***
  - ***Sleep Date :*** Select the date when the STB is turn off. Press the **OK** button to display the calendar.
  - ***Sleep Days :*** Select a day of the week when STB is turn off.
  - ***Sleep Time :*** Enter the turn-off time of the STB using the **NUMERIC** buttons.

2.5 Language Setting

- **Menu Language :** Select the desired menu language by using the **ARROW** buttons.

NOTE : The menu and operation languages can be changed depending on the country sold. Available languages are subject to change without prior notice.

- **Audio Language :** Select the default language for the audio when changing services. If no other language is provided, then the default language of current will be automatically selected.
- **Subtitle Language :** Select the default language for subtitle when changing service.
- **Teletext Language :** Select the default language for Teletext.
- **User Font file :** Select a font you want to use.

NOTE : To show and use the User Font, please install a desired font file(*.ttf) to the /Var/Font directory(folder) in your PC which is connected with your receiver(STB) by network. Then press LEFT/RIGHT button to select a font and press OK button.

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2.6 A/V Output Setting

- **TV Type :** Select the TV types.(***PAL/NTSC/Auto***) In Auto mode, the STB is automatically selected to NTSC or PAL accordingly to the service played.
- **TV Aspect Ratio :** Select the aspect ratio of TV which is connected to the STB ***(4:3/16:9).*** This menu must be set prior to selecting the Display Format function.
- **Display Resolution :** Select the Display Resolution of the screen by using **ARROW** or **OK** button. You can also change the resolution with **Resolution** button in the remote. Each time you press the **Resolution** button, the resolution changes in the following sequence: ***576i > 576p > 720p > 1080i > 1080p.***

NOTE : ***Please note that your TV may not show a picture depending on the Display Resolution set by your STB as well as if set to PAL when NTSC is required or vice versa. If you set the Display Resolution as SD(576i), your TV cannot display anything when the TV is connected to the Component Video(YPbPr). If you set the Display Resolution as HD(more than 576p), your TV cannot display anything when the TV is connected to the SCART or Composite Video output of the STB. In case of HDMI, your TV can display a picture for all of the resolution settings of the STB. But it is also possible that your TV may not display a picture with 576i, because some HDTV's does not support 576i.***

- **Display Format :** In case of a 4:3 ratio TV set, you can select ***Letter Box*** or ***Pan&Scan.*** In case of a 16:9 ratio TV set, you can select ***Pillar Box*** or ***Full Screen.***
  - ***16:9 Display format on 4:3 TV set***
    Letter Box : You can see the full screen of 16:9, but top and bottom edges of your TV screen display black horizontal Pillars.
    Pan&Scan : The picture is displayed in full on your 4:3 TV screen, but left and right sides of the original picture cannot be displayed.
  - ***4:3 Display format on 16:9 TV set***
    Pillar Box : You can see the full screen of 4:3, but left and right sides of your TV screen display black vertical Pillars. 4:3
    Full Screen : The picture is displayed in full on your 16:9 TV screen, but left and right sides of the original picture is displayed with widening of the screen from left and right.
    Because of the artificial widening, the TV picture will be distorted.
- **Video Output Mode :** According to Display Resolution, you can select the ***Video Output Mode.***
  - ***In case of More than 576p(HD) :*** The ***'RGB'*** output will be disabled automatically. You can select Video Output Mode ***(CVBS, YPbPr, YC).***
  - ***In case of 576i(SD) :*** The *'YPbPr'* output will be disabled automatically. You can select Video Output Mode (***CVBS, RGB, YC***).
- **HDMI Dolby Digital :** Set the Dolby Digital mode ***'On'*** or ***'Off'*** in status of HDMI output.
- **Dolby Digital Default :** Set the Dolby Digital Default mode ***'On'*** or ***'Off'.*** If you set ***'On'***, Dolby Audio will play on the service that support Dolby Audio.
- **Sound Mode :** Set the audio mode output among the RCA jack, optical SPDIF and HDMI ***(Stereo/Mono/Left/Right).***
- **Standby Power :** You can select the standby power.
  - ***'On' :*** Front window displays clock besides standby red LED in case of standby mode.
  - ***'Off' :*** Front window only displays standby red LED in case of standby mode.
- **Audio Sync Delay :** To adjust Audio Sync. You can adjust from 0ms to 400ms.

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3. Installation

If your receiver(STB) is tuner(Satellite, Terrestrial, Cable) changeable type, installation menu will be apply as which type of tuner(Satellite, Terrestrial, Cable) you have installed.
When you install two tuners, you may install any types of tuner and position you want.

NOTE : When you install only one tuner, you must install it at the Outer(TUNER 1) part of the tuner position. If you installed it at the Inner(TUNER 2) part, it will be disabled.

- **Different types of Installation Menus based on the tuner settings**

<table>
<tr><th>S+S(S)</th><th>T+T(T)</th><th>C+C(C)</th><th>S+T</th><th>S+C</th><th>T+C</th></tr>
<tr><td>Dish Setting</td><td rowspan="2">Terrestrial Search</td><td rowspan="2">Cable Search</td><td>Dish Setting</td><td>Dish Setting</td><td>Terrestrial Search</td></tr>
<tr><td rowspan="2">Satellite Search</td><td>Satellite Search</td><td>Satellite Search</td><td rowspan="2">Cable Search</td></tr>
<tr><td>Terrestrial Search</td><td>Cable Search</td></tr>
<tr><td>Network Setting</td><td>Network Setting</td><td>Network Setting</td><td>Network Setting</td><td>Network Setting</td><td>Network Setting</td></tr>
<tr><td>System Recovery</td><td>System Recovery</td><td>System Recovery</td><td>System Recovery</td><td>System Recovery</td><td>System Recovery</td></tr>
<tr><td>System Information</td><td>System Information</td><td>System Information</td><td>System Information</td><td>System Information</td><td>System Information</td></tr>
</table>

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3.1 Dish Setting

- Select the satellite/antenna and LNB settings for service search. The values that are set in this menu will be available for selection in other service searching menus.
- **Satellite :**
  Select the satellite which you want to do a search for.
  - Press the **LEFT/RIGHT ARROW** button to select the satellite.
  - If you press the **OK** button, the entire satellite list will be displayed.
  - Select the desired satellite name to search.
  - If the desired satellite name is not listed then select User Defined.
- **Tuner Connection :** You can set connection type, Separate or Loop-Through.

NOTE : Tuner Connection menu is disabled if tuner is not connected in twin satellite or only one tuner is connected.

- ***Separate :*** Set the connection type option to ***'Separate'***, if each of the tuners are connected to different LNBs (TUNER 1 / TUNER 2) individually / independently. This Separate connection is used, when each two tuners are connected to different LNBs. Due the independent & separate connections between two Tuners & LNBs, user can watch all the services scanned by one ***TUNER 1***, while the other ***TUNER 2*** is set for recording at the same time.
- ***Loop-Through :*** Set the connection type option to ***'Loop-Through'***, if you have connected the LNB OUT (TUNER 1) and LNB IN (TUNER 2) with a loop-through cable. In this case, you would have some limitations in using some features such as dual recording.
  This connection is used when the ***TUNER 1*** is connected with LNB output, and the Loop-through output of the ***TUNER 1***is connected with input of the ***TUNER 2.*** This is the way to use & activate both tuners when you have only 1 LNB with your dish antenna. However, this will limit the possible tuning range (Satellite & Polarization) of the 2nd tuner, while the 1st tuner is being used for its recording process (Because the input signal of 2nd tuner is dependent of the signal which the 1st tuner is tuned to).

NOTE : User should make the appropriate connection by choosing the right tuner connections between the Loop-Through and Separate connections. Due to the difference of these two connections, wrong LNB and Tuner connection may cause the loss of signal reception. We strongly recommend the use of professional service personnel to make this installation and connection if your knowledge is limited.

- **Tuner :** Select the tuner which you want to set (Tuner 1/ Tuner 2). If you set ***'Loop-Through'*** on the menu***(Installation-Dish Setting-Tuner Connection),*** this menu(Tuner) will be disabled automatically.
- **Frequency :** Select the satellite frequency which you want to use for checking the signal.
- **LNB Power :** Select the LNB power on or off.
- **LNB Type :** Select the LNB type.
- **LNB Frequency :** Select the local oscillator (L.O.). frequency that is specified for the LNB used.
  - Use the **LEFT/RIGHT ARROW** buttons to select the LNB frequency.
  - If the required LNB frequency is not listed, then enter the frequency manually using the **NUMERIC** buttons.
  - When you select Universal LNB type, both 9750 and 10600 are supported at the same time. And then the LNB 22KHz setting is disabled.
- **LNB 22KHz :** When you use a separate coax 22 KHz tone switch box, make the 22 KHz tone switch enabled or disabled to select the input you desire of the tone switch.
- **DiSEqC Switch :** If you use DiSEqC 1.0 or DiSEqC 1.1 switch, select one of the DiSEqC inputs.

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3.2 Positioner Setting

- **Satellite :** Select the satellite which you want to search for the Service.
  - Press the **LEFT/RIGHT ARROW** button to select the satellite.
  - If you press the **OK** button, a complete satellite list will be displayed.
  - Select the wanted satellite name.
  - If the desired satellite name is not listed then select User Defined.
- **Tuner :** Select tuner that you want to set ***(Tuner 1/ Tuner 2).*** If you have set ***'Loop-Through'*** in the menu***(Installation-Dish Setting-Tuner Connection),*** this menu(Tuner) will be automatically disabled.
- **Frequency :** Select the satellite frequency you want to use to check for a signal.
- **Positioner :** Select the positioner.
  - ***None :*** (No Positioner)
  - ***Using DiSEqC 1.2 :***
    Move : To move the dish, press **LEFT/RIGHT** button.
    Fine Move : To move the dish in smaller steps, press the **LEFT/RIGHT ARROW** button.
    Step : Set to positioner moving steps as 1, 2, 3, 4
    Positioner Command : To use various positioner commands, press the **OK** button. Then, available positioner commands will appear.
  - ***Using USALS :***
    Move : To move the dish, press the **LEFT/RIGHT** button.
    Fine Move : To move the dish in smaller steps,, press the **LEFT/RIGHT ARROW** button.
    Step : Set to positioner moving steps as 1, 2, 3, 4
    Dish Longitude : Enter the longitude position of the antenna using the **NUMERIC** buttons.
    Dish Latitude : Enter the latitude using the **NUMERIC** buttons.
    Go To : Press the **OK** button to rotate the dish to the selected antenna position.

- **Dish Setting :** Press the **OK** button to move to ***Dish Setting*** menu directly.
- **Service Search :** Press the **OK** button to move to ***Service Search*** menu directly.

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3.3 Service Search

You can select the following search mode.

3.3.1 Satellite Search

- **Auto Search Mode :**

  - ***Satellite :*** Press the **OK** button to select the target satellite to be searched.
  - ***Tuner :*** Select tuner what you want to set ***(Tuner 1/ Tuner 2).*** If you set ***'Loop-Through'*** on the menu ***(Installation-Dish Setting-Tuner Connection),*** this menu (Tuner) will be automatically disabled.
  - ***Search Type :*** Select the search type.
  - ***Network Search :*** You can select ***'Off'*** or ***'On'.*** When you select ***'On',*** you can find more transponders using the home network. As it refers to NIT during searching, if there is the frequency information of other transponder, it searches the other transponder besides the transponder that the user inputs.
  - ***Time Calibration :*** You can select ***'Simple', 'Full'*** and ***'Off'*** to get TDT(Time Data Table) from each TP
  - ***Dish Setting :*** Press the **OK** button to move to Dish Setting menu directly.
  - ***Positioner Setting :*** Press the **OK** button to move to the Positioner Setting menu directly.
  - ***Start Search :*** Press the **OK** button to start search.

- **Manual Search Mode :**

  - ***Satellite :*** Press the **OK** button to select the target satellite for search.
  - ***Tuner :*** Select tuner what you want to set ***(Tuner 1/ Tuner 2).*** If you set ***'Loop-Through'*** on the menu ***(Installation-Dish Setting-Tuner Connection),*** this menu (Tuner) will be automatically disabled.
  - ***Frequency :*** Select the frequency from the list to search.
  - ***Symbol rate :*** Enter the symbol rate using the **NUMERIC** buttons.
  - ***Polarity :*** Select the polarity. ***(Vertical/Horizontal)***
  - ***Search Type :*** Select the search type.
  - ***Network Search :*** You can select ***'Off'*** or ***'On'.*** When you select ***'On',*** you can find more transponders using the home network. As it refers to NIT during searching, if there is the frequency information of other transponder, it searches the other transponder besides the transponder that the user inputs.
  - ***Dish Setting :*** Press the **OK** button to move to Dish Setting menu directly.
  - ***Transmission :*** You can select ***'DVB'*** and ***'DVB-S2'.***
  - ***Start Search :*** Press the **OK** button to start search.

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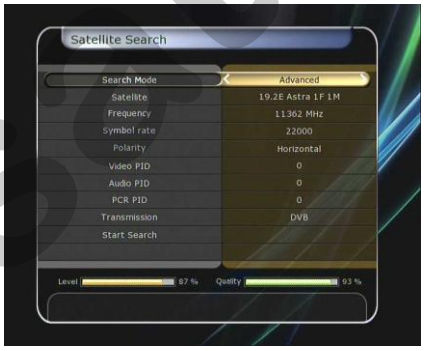
- **Blind Search Mode :**

  - ***Satellite :*** Press the **OK** button to select multiple satellites.
  - ***Tuner :*** Select tuner what you want to set ***(Tuner 1/ Tuner 2).*** If you set ***'Loop-Through'*** on the menu ***(Installation-Dish Setting-Tuner Connection),*** this menu (Tuner) will be automatically disabled.
  - ***Frequency :*** Set Auto to search whole frequency, Set Manual to search only desired frequency.
  - ***Polarity :***
    Select the polarity. ***(All Polarity/Vertical/Horizontal)***
  - ***Search Type :*** Select the search type.
  - ***Dish Setting :*** Press the **OK** button to move to the Dish Setting menu directly.
  - ***Start Search :*** Press the **OK** button to start a search.

- **Advanced Search Mode :**



  - ***Satellite :*** Press the **OK** button to select the target satellite for search.
  - ***Tuner :*** Select tuner what you want to set ***(Tuner 1/ Tuner 2).*** If you set ***'Loop-Through'*** on the menu ***(Installation-Dish Setting-Tuner Connection),*** this menu (Tuner) will be automatically disabled.
  - ***Frequency :*** Select the frequency from the list to search.
  - ***Symbol rate :*** Enter the symbol rate by using the NUMERIC buttons.
  - ***Polarity :*** Select the polarity. ***(Vertical/Horizontal)***
  - ***Video PID :*** Enter the video PID using the **NUMERIC** buttons.
  - ***Audio PID :*** Enter the audio PID using the **NUMERIC** buttons.
  - ***PCR PID :*** Enter the PCR PID using the **NUMERIC** buttons.
  - ***Transmission :*** You can select ***'DVB'*** and ***'DVB-S2'***
  - ***Start Search :*** Press the **OK** button to start a search.

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3.3.2 Terrestrial Search

- **Auto Search Mode**
  - ***Search Type :***
    Select the search type***. (All Service/FTA Only/TV Only)***
  - ***Antenna 5V :*** If you want to out the power of antenna, select the power on.
  - ***Start Search :*** Press **OK** button to start search.

- **Manual Search Mode**
  - ***Channel :*** Select the channel what you want to search
  - ***Frequency :*** Information of channel frequency.
  - ***Bandwidth :*** Information of channel bandwidth.
  - ***Search Type :***
    Select the search type. ***(All Service/FTA Only/TV Only)***
  - ***Start Search :*** Press **OK** button to start search.

3.3.3 Cable Search

- **Auto Search Mode**
  - ***Search Type :***
    Select the search type. ***(All Service/FTA Only/TV Only).***
  - ***Start Search :*** Press **OK** button to start search.

- **Manual Search Mode**
  - ***Frequency :*** Select the frequency what you want to search. Or enter the frequency manually using **NUMERIC** buttons.
  - ***Symbol rate :*** Enter the symbol rate using **NUMERIC** buttons.
  - ***QAM Mode :*** Select the constellation using ARROW buttons. ***(AUTO / QAM16 / QAM32 / QAM64 / QAM128 / QAM256)***
  - ***Search Type :***
    Select the search type. ***(All Service/FTA Only/TV Only)***
  - ***Start Search :*** Press **OK** button to start search.

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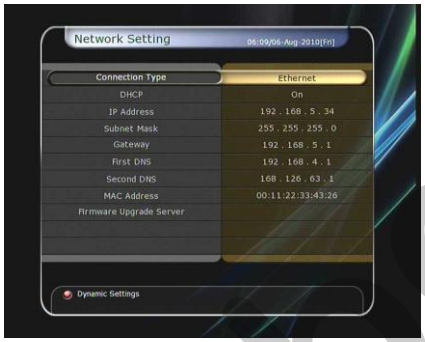
3.4 Network Setting



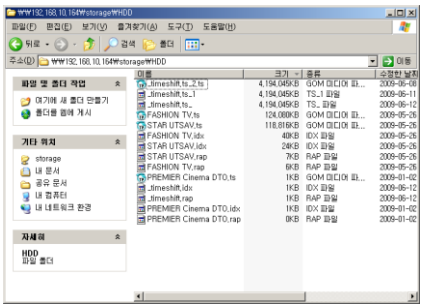
To use a Network connected to the STB Ethernet port, you have to prepare the STB Network settings. When the STB and a PC are connected via a network, you can access the files of the STB storage device such as the SATA Hard Disk Drive (HDD) or USB storage device.

NOTE : If you use DHCP function of router, you can set easily network configuration.

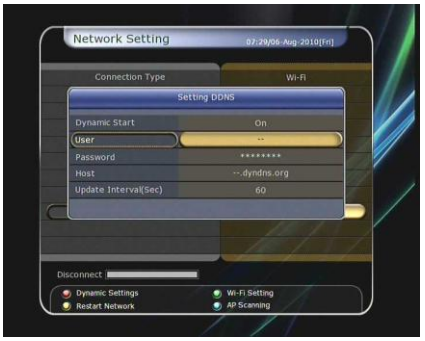
- **DHCP :** You can select ***On/Off*** for the Dynamic Host Configuration Protocol (DHCP) to get the all configuration from the router.
  - ***If you select 'On' :*** You will obtain the configuration from network and be set up automatically. In this case, the remaining item ***(IP Address, Subnet Mask, Gateway, First DNS, Second DNS)*** are automatically set and you don't have to configure them manually.
  - ***If you select 'Off' :*** You have to input the IP address manually together with the following data.
  - ***IP Address, Subnet Mask, Gateway, First DNS, Second DNS :*** You can input the address with the **OK** button, **NUMERIC** buttons and the **LEFT/RIGHT** buttons. You can move to the next item of Subnet Mast with the **DOWN** button and you can configure the following items in the same way.
- **Firmware Upgrade Server :** To upgrade the firmware by downloading from a internet server.

NOTE : Server installation and settings must be controlled by expert server manager. A storage device must be connected with your receiver(STB) when firmware upgrade from server.

- **MAC Address :** This will display the MAC address of the STB Ethernet interface and is a fixed assignment unique to each STB.
- **Control of the files via the network and your PC :**
  - Check the IP Address of the STB on the Network Setting menu.
  - Press Enter button on your PC, after writing IP Address on the web browser address line. Ex.) \\168.158.10.146\storage
  - You can see the folder name of HDD, USB1, USB2 and USB3 in the Storage folder.
  - ***HDD :*** SATA HDD (internal HDD or external-SATA)
  - ***USB1 :*** Front USB Storage Device
  - ***USB2 :*** Rear Top USB Storage Device
  - ***USB3 :*** Rear Bottom USB Storage Device
  - You may be able to load and retrieve data between the PC and the STB via the browser



- **Dynamic settings (RED key)**
  - You can make your DDNS setting in this menu by pressing the **RED** colored button.
  - For more details about your DDNS settings, please ask your local DDNS service provider.



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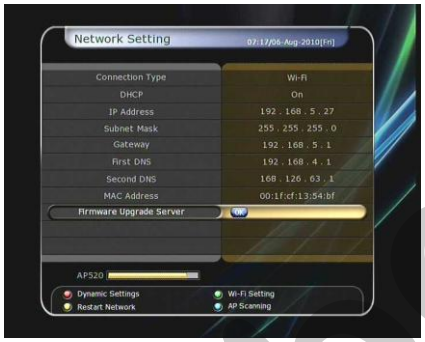
- Wireless LAN can be supported by using the ***'USB to Wi-Fi'*** module connected (*Option)
  - By pressing the **BLUE** colored button, you can automatically find and do the settings for AP.
  - For the details of Wireless Wi-Fi settings, please refer to the additional AP manual.



NOTE : The speed of Wireless LAN is slower than the Wired LAN. So, it could take much more time when a file copy / move functions are performed.

NOTE : Inevitably, only the limited types of Wireless LAN modules are supported. So, you MUST check for the compatible / supported types BEFORE you purchase. Currently supported types are : RT73 series, RT3070 series, RT2870 series.

3.5 System Recovery

- **System restore to factory default :** Restore the factory set values in case the user has encountered some problems after changing any new parameters of service data and other parameters which may be in error. Press the **OK** button to erase all services and restore default setting.
- **Reset Configuration data :** Maintain the service data and reset the configuration data.
- **Reset Service data :** Maintain configuration data and reset the service data.
- **System restore to stored position :** Restore the stored values including service data and system parameters. Press the **OK** button to restore all data.
- **Store system data :** If you want to use system parameters and service data in the future, this menu allows you to store current state. Press the **OK** button to store current state.
- **Delete store position :** Delete stored system data.

3.6 System Information

This menu displays general information about the hardware and software version of your receiver.

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4. Utility

4.1 Calculator

To use the calculator, highlight the calculator and press the **OK** button.

4.2 Calendar

To display the calendar, highlight the calendar and press the **OK** button. Utilize the **ARROW** buttons to choose the date. If you press **PAGE UP/DOWN** button, you can see the past/next month of the calendar.

4.3 CAS (Conditional Access System)

- **Smart Card Slot**
  - ***Conax smart card menu :***
    To watch scrambled services, you need to have an appropriate Conax smart card from the service providers. Insert a valid smart card into smart card slot (only the bottom slot of the two is active). The message of 'Smart card Initializing…' will appear on the screen. After the message disappears, you can watch the service you want.
  - ***Smart card information :***
    You can view the current status of smart card. Select the slot which you want to view using the **ARROW** buttons. And press the **OK** button.

- **CAM Initializing**
  To watch scrambled services, you need to have a Common Interface Conditional Access Module(CAM) and an appropriate smart card from the provider. Insert the CAM together with a valid smart card into CI slot (two slots available). The message of ***'CI Initializing…'*** will appear on the screen. After the message disappears, you can watch the service you want.

- **CAM information**
  You can view the current status of CAM. Select the slot which you want to view using the **ARROW** buttons, and press the **OK** button. If the CAM is available, you can view information about each slot.

NOTE : The displayed information of each CAMs may be different depending on the CAM used.

- **CI message**

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- ***On :*** To display the CI message on live TV service.
- ***Off :*** To disable the CI message on live TV service.

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4.4 Plugin

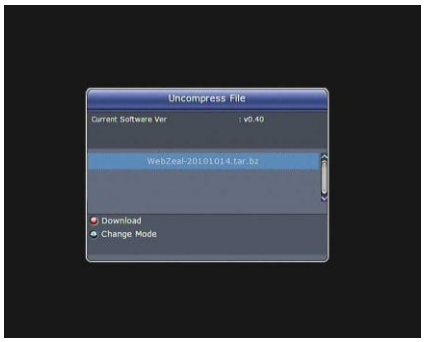
If you have the program file for ***Plugin,*** you can download the file(s) to ***Plugin*** then enjoy the program.

- **Download Plugin File**
  - In the USB storage, please create a new folder name ***'plugin'*** and in this ***'plugin'*** folder, create a folder name ***'bin'. (plugin > bin)***
  - Store(Copy) the ***plugin*** file in the ***'bin'*** folder.
  - Connect the USB storage to the receiver. When Software Download menu is appeared, then press **LEFT/RIGHT ARROW** buttons to move to User Data Download mode.
  - Press **RED** button to start download the ***plugin*** file that you want.

NOTE : You can also download by Menu > System Tools > Data Transfer > Data download from USB storage.

- **Plugin Menu**
  - ***RED button :*** To set the plugin Start Type. You can select Auto or Manual.
  - ***GREEN button :*** To Start the plugin. You will see ***'Started'*** in State if the plugin is started.
  - ***BLUE button :*** Press **BLUE** button if you want to delete the plugin file.

- We provide a special feature called ***WebZeal*** which is for Web-Browsing. You can simply enjoy the WebZeal when you want web surfing.
- ***WebZeal*** Plugin File Download. [64MB Model]
  - Stored the ***WebZeal*** file to the USB storage device.
    File name : ***'WebZeal-201xxxxx.tar.bz'.***
  - Connect the USB storage device to your receiver.
  - When USB storage device is connected, Software Download window menu will appear. Or you may go to ***Data Transfer menu > Data download*** from USB storage.
  - In this menu, press **LEFT/RIGHT ARROW** buttons to move to Uncompress File mode then you will see the file name ***'WebZeal-201xxxxx.tar.bz'.***
  - Press **RED** button to download the ***WebZeal.***



NOTE : Upgrading time takes approximately 10 minutes.

- Executing ***WebZeal*** with USB Storage device
  - Stored the WebZeal file to the USB storage device.
    File name : ***'WebZeal-201xxxxx.tar.bz'.***
  - Connect the USB storage device to your receiver then go to ***Menu > System Tools > Storage Manager.***
    - Set the Current Device to File Mount Drive.
    - Set the Mount File Name to WebZeal-201xxxxx.mnt
    - Press Connect then go to ***Menu > Utilities > Plugin*** to start the WebZeal.

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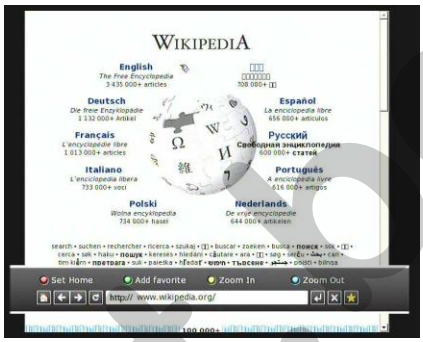
NOTE : If you are using WebZeal by File Mount Drive, current USB storage device will not allow to use PVR functions such as recording and time-shift. But it can be use when WebZeal is not in use.

- ***WebZeal*** Option
  - **RED button :** Press to set the current web page as home.
  - **GREEN button :** Press to add the current web page to favorite.
  - **YELLOW/BLUE button :** Press to adjust the page Zoom In and Zoom Out as you want.
  - **MENU button :** Press **MENU** button to show simple internet menu.

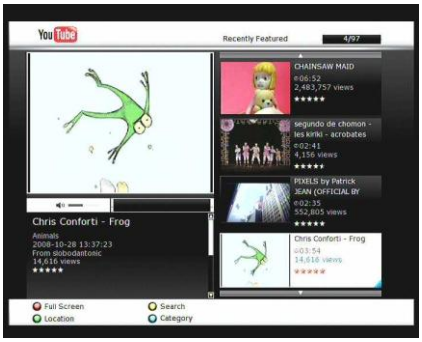


4.5 YouTube

- **Required settings :** Before you can enjoy the ***YouTube*** feature with your STB, please make sure of the following conditions.
  - Set-top-box should be connected with Ethernet cable, with proper network settings. (Please refer to the menu of ***"Network setting",*** and its operation instructions).
  - Sufficient buffering with storage memory (HDD or USB) is needed ;
    - If your STB is already installed with a Hard disk drive (HDD) inside, then this HDD will be used as a buffering memory.
    - If there is no HDD already installed in the STB. Then, you can plug in an USB memory of suitable memory size for buffering.

NOTE : a) Minimum required USB memory size for buffering depends on the size of the contents that you wish to watch from the YouTube service. So in general, it is recommended to use a bigger and sufficient sized USB memory for enough buffering.
b) Problems due to network environment : Problems such as flickering and freezing of the screen can occur while you are watching the YouTube service. These kind of problems can often occur due to the lagging and slow speed of the network status from your internet service provider at home. This may also cause the STB to be halted, then we kindly recommend to reset to STB power for rebooting and continue using.

- **About YouTube feature**
  - YouTube menu is located in the ***'Menu*** > ***Utilities*** > ***YouTube'.***
  - On the right side of the screen, you can see the list of thumbnails of the contents.
  - Press the **PAGE UP/DOWN** buttons to navigate quickly in the service list on the right.
  - On the left side of the screen, the detailed information of the selected thumbnail is being displayed.-
  - Use the **ARROW** buttons to navigate through the menu
  - And press the **OK / Play** buttons to start viewing the selected content.



  - While playing, use the **PAUSE / STOP** buttons to pause, or stop playing the service.
  - Trick play modes (**FAST FORWARD / REWIND**) are not support in the STB's YouTube menu.
  - Use the **VOLUME UP / DOWN / MUTE** buttons to adjust the audio sound.

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- Press the **MENU / EXIT** buttons to exit from the service, or to the menu while you are watching the service.

- Using the Hot (colored) buttons in the YouTube menu :
  - **RED (Full screen)** : Press this button to view the service in full screen size. This button only functions while the service content is being played.
  - **Yellow (Search)** : Press this button and input the name of the content that you wish to search in YouTube. When the virtual keyboard is displayed, you can also use the dedicated hot colored buttons for each functions.
  - **Green (Location)** : Press and choose your location from the list of world-wide, and many country names in this list. Based on your selected location, corresponding contents list will be provided.
  - **Blue (Category)** : Press this blue button to view the list of categories, then choose the one you prefer to view the list of contents in the selected category.

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Troubleshooting

Problem	Solution
Does not display any message on the front panel.	✓ Check the main power cable and check that it is plugged into a suitable power outlet. ✓ Check the STB main power switch 'ON' at the rear of the STB.
No Picture	✓ See ***'Does not display any message on the front panel'*** above. ✓ To match the STB system with your TV system (PAL/NTSC), press *V.Format* button until a picture is displayed. ✓ Check the video output port is firmly connected to the TV or VCR. ✓ Check that you have selected the Video Input on your TV. ✓ Press the STB button on the remote to assure you are controlling the STB and no other device with the remote. ✓ Check the brightness level of the TV. ✓ Check the resolution that your TV supports, and set the proper resolution with the remote *Resolution* button to obtain a picture.
Poor picture quality	✓ See ***'No Picture' above.*** ✓ Check the signal level, if this is low then tries adjusting the alignment of your dish.
No Sound	✓ See ***'No Picture'*** above. ✓ Check the volume level of the TV and STB. ✓ Check the Mute status of the TV and STB.
Remote Control does not operate	✓ Point remote control directly towards the STB. ✓ Check that the STB button lights up when you press any button ✓ Check and replace batteries.
No or Bad Signal	**[For DVB-S2 tuner model only]** ✓ Check the LNB ; Replace the LNB if necessary. ✓ Check the cable from the LNB. ✓ Check the position of the dish; realign dish if necessary. ✓ If you are using a DiSEqC 1.0 switch, check that you have connected and programmed the LNBs to the correct connections on the switch. **[For DVB-T(T2) tuner model only]** ✓ Check the connection of Aerial antenna line. **[For DVB-C tuner model only]** ✓ Check the connection of Broadcasting Cable line. **[Common features for all types of DVB receivers]**

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	✓ Check the ‘Signal Level’ and the ‘Signal Quality’.

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Specifications

Tuner & Channel Decoder	[S2 tuner]
Input Connector	F-type, IEC 169-24, Female
Loop through out	F-type, IEC 169-24, Female
Frequency Range	950MHz ~ 2150MHz
Input Impedance	75Ω, unbalanced
Signal Level	-65 to -25dBm
LNB Power	13/18VDC, max.400mA
22KHz Tone	(22±2)KHz, (0.6±0.2)V
DiSEqC Control	V1.0/1.2/USALS Compatible
Demodulation	QPSK / 8PSK
Input Symbol Rate	2 ~ 45 Ms/s(QPSK of DVB-S) 2 ~ 45 Ms/s(QPSK of DVB-S2) 2 ~ 37 Ms/s(8PSK of DVB-S2)
FEC Decoder	1/2, 2/3, 3/4, 5/6 and 7/8 with Constraint Length K=7(DVB-S) 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9 and 9/10 (DVB-S2)

Tuner & Channel Decoder	[T tuner]
Input Connector	IEC 169-2, Female
Loop through out	IEC 169-2, Male
Frequency Range	VHF III : 174~230 MHz UHF IV : 470~606 MHz UHF V : 606~862 MHz
Demodulation	OFDM
Channel Bandwidth	6, 7, 8 MHz
FET mode	2K, 8K
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32

Tuner & Channel Decoder	[T2 tuner]
Input Connector	IEC 169-2, Female
Loop through out	IEC 169-2, Male
Frequency Range	VHF III : 174~230 MHz UHF IV : 470~606 MHz UHF V : 606~862 MHz
Demodulation	OFDM
Channel Bandwidth	6, 7, 8 MHz
FET mode	1K, 2K, 4K, 8K, 16K, 32K
Code Rate	1/2, 2/3, 3/4, 3/5, 4/5, 5/6
Guard Interval	1/4, 5/32, 1/8, 5/64, 1/16, 1/32, 1/64, 1/128

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Tuner & Channel Decoder	[C tuner]
Input Connector	IEC 169-2, Female
Loop through out	IEC 169-2, Male
Frequency Range	50MHz ~ 1GHz
Demodulation	16, 32, 64, 128, 256 QAM(for Annex A/C)
	64, 256 QAM(for Annex B)
IF Bandwidth	8 MHz(-3dB) TYP(for Annex A/C)
	6 MHz(-3dB) TYP(for Annex B)
Symbol rate	1 Msps ~ 7 Msps(for Annex A/C)
	5.057 Msps(for 64QAM, Annex B)
	5.361 Msps(for 256QAM, Annex B)

MPEG Transport Stream A/V Decoding	
Transport Stream	H.264(MPEG-4 part 10, MPEG-4/AVC and H26L)
	MPEG-II ISO/IEC 13818-2/11172-2
Profile Level	MPEG-4/AVC MP@L4, MPEG-II MP@HL
Input Rate	Max. 80Mbit/s
Video Formats	4:3 Letter Box, 4:3 PanScan, 16 : 9
Video Resolution	720 x 576i, 720 x 576p, 720 x 480i, 720 x 480p
	1280 x 720p, 1920 x 1080i, 1920 x 1080p(supports only HDMI)
Audio Decoding	Dolby Digital, MPEG-1 Layer 1,2 and 3
Audio Mode	Stereo/Joint stereo/Mono, Dolby Digital bitstream
Sampling Rate	32KHz, 44.1KHz and 48KHz(According to input)

Main System	
Main Processor	STi chipset
Memory	Flash-ROM : 64 Mbyte
	SDRAM : 256 Mbytes
	EEPROM : 256 bytes

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Audio / Video & Data IN/OUT	
TV SCART	RGB, Y/C, CVBS Video, Audio L, R Output
VCR SCART	CVBS Video, Audio L, R Output
	RGB Video input, CVBS Video, Audio L, R Input
RCA	CVBS Video Output, Audio L, R Output
Component	YPbPr Video Output
HDMI	Video & Audio Output
OPTIC	Dolby Digital (SPDIF)
RS-232C	9 pin D-SUB (Male) type, Transfer rate 115Kbps
USB	USB 2.0 Host Front & Rear Support. (5V DC 500 mA Max.)
Ethernet	RJ45 connector, 100 Mbps
e-SATA	External SATA

Front Panel	
Slot	1 USB 2.0 Host port
	2 Common interface PCMCIA slot
	2 Smart Card Slot
Display	VFD(Vacuum Fluorescent Display) - 12Digit
Buttons	5 Buttons (Standby, CH UP/DOWN, Volume UP/DOWN)

Power Supply	
Input Voltage	AC 100 ~ 250V, 50/60Hz
Type	SMPS
Power Consumption	Max. 55W
Standby Power	Max. 1W
Protection	Separate Internal Fuse & Lighting protection

Physical Specification	
Size (W x H x D)	340mm X 60mm X 230mm
Weight (Net)	2.0 Kg (Excluding HDD)
Operating Temp.	0°C ~ +45°C
Storage Temp.	-10°C ~ +70°C

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Code Table for Universal Remote Control Unit

1. Key Table

No	KEY NAME	TV	DVD	VCR
1	STB			
2	TV	V		
3	DVD		V	V
4	⏻	V	V	V
5	🔇	V		
6	V.Format			
7	SLEEP			
8	TV/RAD, Source	V		
9	Resolution			
10	◀◀		V	V
11	▶▶		V	V
12	▶ Time		V	V
13	⏮		V	
14	⏭		V	
15	●		V	V
16	⏸		V	V
17	■		V	V
18	✓			
19	📖	V		
20	📖	V		
21	🔊?	V		
22	⊞	V		
23	INFO			
24	RECALL			
25	MENU	V	V	
26	EXIT	V	V	
27	▲	V	V	
28	▼	V	V	
29	◀	V	V	
30	▶	V	V	
31	OK	V	V	
32	⏪P			
33	FAV			
34	P⏩			

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No	KEY NAME	TV	DVD	VCR
35	VOL +	V		
36	VOL -	V		
37	CH +	V		V
38	CH -	V		V
39	EPG			
40				
41				
42				
43				
44	0	V	V	V
45	1	V	V	V
46	2	V	V	V
47	3	V	V	V
48	4	V	V	V
49	5	V	V	V
50	6	V	V	V
51	7	V	V	V
52	8	V	V	V
53	9	V	V	V
54				
55				
56	REV1			
57	REV2			
58	REV3			
59	REV4			
60	REV5			
61	REV6			

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2. TV Brands

Refer to *'**5.Multi-Brand IR Remote Controller Setting**' in the 16 page of this manual*

TV Brands	Code				
ADMIRAL	050	134			
AKAI	093	049	123		
ALBA	068				
ALBIRAL	116				
ALCATEL	022				
AMSTRAD	158	021			
ANAM	155	156	157		
ARC EN CIEL	028	039	043	145	081
ARISTONA	099	049	050	019	142
	149	078			
ARTHUR MARTIN	053	139	117	120	122
	123	125	128		
ASA	050	055	057	113	134
ATLANTIC	099	111			
AUDIOSONIC	054				
AUSIND	053				
AUTOVOX	099	144	055	019	057
	069				
BAIRD	083				
BASICLINE	006				
BAUR	011				
BEKO	023	049			
BLAUPUNKT	094	100	102	111	114
BRANDT	028	039	040	043	145
	081				
BRION VEGA	050				
BRUNS	048	050			
BSR	059	110	132		
BUSH	033	068	124	074	
CENTURY	098	101	050	079	136
CGE	016	101	124	079	132
	136				
CIHAN	065				
CLARIVOX	048	116			
CONDOR	099	111			
CONTEC	087				
CONTINENTAL EDITION	028	039	040	043	145
	081				
CROSLEY	101	050	109		

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CROWN	***147***				
CTC CLATRONIC	***046***				

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TV Brands	Code				
DAEWOO	089				
DECCA	099	060	063	115	118
DEGRAAF	036				
DIXI	049	090			
DRYNATRON	049				
DUAL	099	141			
DUAL-TEC	096	099	132		
DUMONT	046	050	057	073	
ELBE		016	116		
ELBIT	065				
ELCIT	046	097	103	050	109
	127	132			
ELMAN	046	132			
ELTA	090				
EMERSON	158	098	050		
ERRES	049	142			
EUROPHON	098	046	097	099	051
	115	132			
FERGUSON	146	040	041	150	057
	061	116	149		
FIDELITY	099	149			
FINLUX	034	046	053	055	057
	109	113	073	074	079
FISHER	015	048	050	052	109
	136				
FORGESTONE	149				
FORMENTI	099	053	109	111	125
FORTRESS	137				
FRABA	075				
FRONTECH	054				
FUJITSU	025				
FUNAI	054	059			
GBC	109	132			
GEC	099	060	109	115	134
	088				
GELOSO	103	109	132	134	090
GOLDSTAR	092	003	017	099	049
	075	076	077	090	152
GOODMANS	033	049	060	077	
GORENJE	066	136			

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GREATZ	***001***	***058***	***109***	***122***	***123***
	128	***129***	***130***	***134***	

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TV Brands	Code				
GRANADA	033	099	049	058	060
	142	115	125	134	
GRUNDIG	094	100	057	058	108
	112	114	082	204	206
	212	217	222	239	
HANSEATIC	033	047	099	049	109
	139	111			
HANTAREX	097				
HEMMERMANN	127				
HIFIVOX	028	039	043	145	081
HINARI	158	033	045	143	090
HITACHI	014	033	034	036	099
	145	056	109	139	110
	067	117	132	134	084
	091	081	088		
HYPER	093	099			
IMPERIAL	016	101	124	079	132
	133				
INGELEN	001	058	109	122	128
	129	130	134		
INKEL	000				
INNO HIT	093	098	097	099	143
	077	090			
INTERFUNK	047	049	050	145	058
	109	142	123	128	129
	091				
IRRADIO	093	143	053	077	090
ITT	001	140	058	105	109
	122	123	128	148	129
	130	134	135	083	089
JVC	033	154	209	213	229
	231	235			
KTV	099				
KAISUI	006				
KARCHER	006				
KENDO	098				
KENNEDY	144	019	109		
KORTING	050	059	111		
KRIESLER	099	049	050	019	142
	149	078			

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LENOIR	***099***				
LG	***202***	***205***	***207***	***213***	***218***
	219	***220***	***222***		

TV Brands	*Code*				
LOEWE OPTA	***008***	***097***	***047***	***049***	***050***
	115	***072***			
LOGIK	***118***	***149***			
LUMA	***049***	***120***	***134***		
LUXOR	***058***	***139***	***117***	***120***	***123***
	129	***135***	***083***		
McMICHAEL	***088***				
MEMOREX	***090***				
MAGNAFON	***046***	***097***	***099***	***051***	***053***
	115				
MARANTZ	***049***				
MATSUI	***158***	***099***	***106***	***060***	***118***
	068	***134***	***090***		
MAGNADYNE	***046***	***097***	***103***	***050***	***109***
	115	***127***	***132***		
METZ	***094***	***050***	***114***	***133***	***200***
	239				
MINERVA	***094***	***100***	***057***	***058***	***114***
MISTRAL	***149***				
MITSUBISHI	***033***	***035***	***047***	***049***	***050***
	062	***118***	***119***	***148***	***080***
	138				
MIVAR	***097***	***099***	***115***	***077***	
MULTITECH	***046***	***099***	***115***	***136***	
MURPHY	***134***				
MAONIS	***096***	***144***	***019***	***110***	***134***
NATIONAL	***042***	***104***	***109***		
NEC	***033***	***085***			
NECKERMANN	***099***	***050***	***139***	***120***	***136***
NEI	***049***				
NIKKAI	***060***				
NOBLEX	***015***				
NOBLIKO	***098***	***046***	***099***	***053***	***057***
NOGAMATIC	***028***	***039***	***043***	***145***	***081***
NOKIA	***001***	***140***	***058***	***105***	***109***
	122	***123***	***128***	***148***	***129***

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	130	**134**	**135**	**083**	**089**
NORDMENDE	**028**	**032**	**039**	**043**	**145**
	131	**091**	**081**		
OCEANIC	**109**	**064**	**123**		
ONCEAS	**099**				
OPTONICA	**137**				
TV Brands	***Code***				
ORION	**158**	**059**	**118**	**068**	**127**
	090				
OSAKI	**060**				
OSIO	**077**				
OSUME	**087**				
OTTO VERSAND	**033**	**047**	**049**	**109**	**139**
P.T ACTTRON	**065**				
PAEL	**099**	**053**			
PANASONIC	**030**	**042**	**095**	**104**	**107**
	109	**121**	**126**	**208**	**214**
	217	**223**	**230**	**231**	
PATHE CINEMA	**099**	**111**	**116**	**132**	
PERDIO	**060**				
PHILCO	**016**	**030**	**101**	**050**	**109**
	124	**079**	**132**	**136**	
PHILIPS	**009**	**010**	**013**	**018**	**024**
	099	**049**	**050**	**019**	**142**
	148	**149**	**078**	**088**	**200**
	202	**211**	**212**	**213**	**219**
	225	**226**	**227**	**233**	**237**
	238	**231**			
PHOENIX	**099**	**053**	**109**	**111**	**125**
PHONOLA	**099**	**049**	**050**	**019**	**142**
	149	**078**			
PIONEER	**020**	**049**	**145**	**091**	
PRANDONI-PRINCE	**098**	**097**	**053**	**115**	**134**
PREMIER	**124**				
PRINCE	**098**	**097**	**053**	**134**	
PROTECH	**049**	**054**			
PYE	**099**	**049**	**050**	**019**	**142**
	148	**149**	**078**		
QUASAR	**046**	**097**	**051**	**053**	**077**
QUELLE	**047**	**099**	**100**	**049**	**053**
	055	**057**	**058**	**111**	**112**

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	113	***114***	***118***	***123***	***073***
	074	***128***			
RADIOLA	***099***	***049***	***050***	***019***	***142***
	149	***078***			
RADIOMARELLI	***046***	***097***	***103***	***050***	***109***
	062	***127***	***132***		
RANK	***074***				
RBM	***074***				
REDIFFUSION	***062***	***123***	***134***		

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TV Brands	Code				
REX	096	144	019	141	110
	069	134			
ROBOTRON	048	050			
RTF	048	050			
SABA	028	031	032	037	039
	040	043	097	050	145
	115	120	086	091	081
SAISHO	158	099	118	119	068
	090				
SALORA	053	139	117	120	122
	123	125	128	135	083
SAMBERS	046	097	051	053	115
	077				
SAMPO	121				
SEG	046				
SEI	158	059			
SAMSUNG	015	026	099	054	077
	136	090	151	153	201
	202	203	205	210	213
	215	220	222	226	228
	231	232	238	234	
SANYO	001	002	005	033	044
	048	060	113	118	071
	054		136		
SBR	049	142	148	149	088
SCHAUB LORENZ	001	058	109	122	123
	128	129	130	134	
SCHNEIDER	096	099	049	050	052
	019	141	109	142	125
	149	078	132		
SELECO	016	096	144	019	141
	110	069	134		
SHARP	033	087	137	209	223
	224				
SIAREM	046	097	050	109	115
SICATEL	116				
SIEMENS	005	094	036	100	111
	114	087			
SIERA	099	049	050	019	142
	149	078			

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SILVER	***054***				
SINGER	***016***	***046***	***050***	***109***	
TV Brands	***Code***				
SINUDYNE	***158***	***046***	***050***	***059***	***109***
	127				
SONOKO	***049***	***090***			
SONY	***146***	***007***	***027***	***033***	***038***
	118	***203***	***205***	***209***	***210***
STERN	***096***	***144***	***019***	***110***	***069***
	134				
TANDBERG	***133***				
TANDY	***099***	***060***	***137***		
TASHIKO	***002***	***033***			
TATUNG	***099***	***060***	***063***	***065***	***115***
	118				
TEC	***096***	***099***	***132***		
TELEAVIA	***028***	***039***	***040***	***043***	***145***
	091	***081***			
TELEFUNKEN	***028***	***041***	***145***	***150***	***086***
	091				
TELETECH	***090***				
TELEVIDEON	***099***	***053***	***109***	***111***	***125***
TENSAI	***049***				
TOSHIBA	***004***	***016***	***033***	***070***	***074***
	206	***209***	***224***	***232***	
TRANS CONTINENTS	***098***	***097***	***053***	***134***	
THOMSON	***012***	***028***	***032***	***039***	***040***
	043	***145***	***091***	***081***	
THORN-FERGUSON	***014***	***040***	***041***	***054***	***150***
	057	***061***	***116***	***149***	***086***
TOCOM	***029***				
TRIUMPH	***158***				
UHER	***052***	***111***	***125***		
ULTRA VOX	***098***	***046***	***099***	***050***	***109***
	120				
UNIVERSUM	***092***	***034***	***054***	***077***	
UNIVOX	***116***				
VEGAVOX	***079***				
VOXSON	***050***	***134***			
WATSON	***111***				
WATT RADIO	***046***	***099***	***051***	***109***	***116***

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	127				
WEGA	***033***				
WHITE WESTINGHOUSE	***099***	***111***			
YOKO	***099***				

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TV Brands	Code				
ZANUSSI	096	144	019	110	069
	134				
ZOPPAS	096	144	019	110	134

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3. VCR Brands

VCR Brands	Code				
AKAI	122	133	142	152	132
ALBA	108	120			
AMSTRAD	111				
ANITSCH	109				
ARC EN CIEL	142	156	152		
ARISTONA	145	131			
ASA	118				
AWIA	111	142			
BAIRD	142	133			
BAUER. BOSCH	114	143			
BRIONVEGA	141				
BUSH	108	120			
BLAUPUNKT	114	143	155	131	154
	140				
BRANDT ELECTRONIQUE	142	156	152		
C.EDISON	141				
CANON	114				
CAPEHART	120				
CGE	111	142	152		
CONTINENTAL EDISON	142	156	152		
CRAIG	100	113			
CURTIS MATHES	119				
DAEWOO	101	120	121		
DAYTRON	120				
DECCA	111	142			
DEGRAAF	103	106	111	145	118
DUAL	142	152			
DUMONT	103	111	118		
DYNATECH	111				
EMERSON	102	110	111	119	125
FERGUSON	142	159	130	152	134
	136				
FIDELITY	111				
FINLANDIA	103	118			
FINLUX	103	106	111	118	

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FISHER	***100***	***103***	***105***		

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VCR Brands	Code				
FUNAI	111				
GE	119				
GENERAL	114				
GOLDSTAR	104	162			
GOODMANS	108	111	146		
GRAETZ	141	142	156	150	152
	138				
GRANADA	103	105	118		
GRUNDIG	114	143	118	155	131
	153	154			
HANSEATIC	143				
HARMAN-KARDON	104				
HIFIVOX	142	156	152		
HINARI	102	108	124	127	
HITACHI	106	107	111	142	157
IMPERIAL	111				
INGELEN	142	156	152	138	
INGERSOL	127				
ITT	105	141	142	156	150
	152	133	138		
JENSEN	142				
JVC	142	156	160	130	152
	163				
KENWOOD	105	142	160		
KRIESLER	145	131			
KUBA	143				
LLOYD	111				
LOEWE OPTA	114	118	129	131	
LOGIK	108	127			
LUXOR	133	138			
MAGNADYNE	141				
MAGNASONIC	138				
MAGNAVOX	119				
MARANTZ	104	114	146	118	131
MATUI	110	125	127		
MEMOREX	100	103	105	111	145
METZ	114	143	131	154	137

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VCR Brands	Code				
MGA	117				
MINERVA	155	154			
MINOLTA	106	107			
MITSUBISHI	160	117	149		
MTC	111	113			
MULTITECH	108	111			
MURPHY	111				
NAONIS	142	156	152		
NATIONAL	140				
NEC	104	142	160	152	
NECKERMANN	102	141	114	142	152
NOGAMATIC	142	156	152		
NOKIA	103	105	141	142	156
	150	152	133	138	
NORDMENDE	139	142	156	152	153
	135				
OPTONICA	145	146			
ORION	102	110	125	127	
OSAKI	111				
OTTO VERAND	143				
P. CINEMA	114				
PALLADIUM	141	114			
PANASONIC	123	151	140		
PATHE MARCONI	142	156	152		
PENTAX	106	107			
PERDIO	111				
PHILIPS	112	114	145	146	118
	129	131			
PHONOLA	114	145	118	129	131
PIONEER	160				
PORTLAND	120				
PROLINE	111				
PYE	114	145	118	129	131
QUARTZ	105				
QUELLE	102	144	154		
RADIOLA	145	131			
RADIOMARELLI	141				

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VCR Brands	Code				
RCA	119				
REALISTIC	100	103	105	111	113
	145	146			
REX	142	156	152		
SABA	139	142	156	152	135
SAISHO	102	110	125	127	
SALORA	105	117			
SAMSUNG	113	119	132	161	
SANSUI	142	160			
SANYO	100	103	105	125	138
SBR	118	129			
SCHAUB LORENZ	141	142	156	150	152
	138				
SCHNEIDER	108	111	145	131	
SEI-SINUDYNE	127				
SELECO	142	156	152		
SENTRA	120				
SHARP	145	146	1105	148	
SHINTOM	108				
SIEMENS	114	143	155	131	154
	138				
SIERA	145	131			
SINUDYNE	127				
SONY	144	115	116	126	128
STERN	142	156	152		
STS	106				
SUNKAI	125				
SYLVANIA	111	117			
SYMPHONIC	111	117			
TASHIKO	111				
TATUNG	111	142			
TEAC	111	142			
TEKNIKA	111				
TELEAVIA	142	156	152		
TELEFUNKEN	142	156	152		
TENOSAL	108				
THOMSON	142	156	152		

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VCR Brands	Code				
THORN-FERGUSON	139	142	159	130	152
	134	136			
TOSHIBA	101	142	156	117	158
	152				
TOTELEVISION	113				
UHER	142				
ULTRA VOX	141				
UNITECH	113				
UNIVERSUM	141	114	143		
URANYA	141				
VECTOR	104				
VICTOR	142	160			
VIDITAL	141				
WESTING HOUSE	141				
WARDS	119				
YAMAHA	104	142			
ZANUSSI	142	156	152		
ZENDER	152				
ZOPPAS	142	156			

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4. DVD Brands

DVD Brands	Code				
AIWA	002				
AKAI	007	044			
ALBA	036				
ANAM	074				
ANSONIC	152				
AMES	051				
APEX	003	011	025	037	039
	044	047	048	054	040
AUDIOSONIC	044				
A-TREMD	061				
BROKSONIC	000				
BULE SKY	158	036			
BUSH	067	044	000	152	
CAT	036				
CLASSIC	051				
CELESTIAL	158				
CENTREX	158				
CINEULTRA	036				
CONIA	158				
COMBRIDGE AUDIO	088				
CROWN	044				
CYBERCOM	152				
CYBERRHOME	061				
DAEWOO	005	045	052		
DAEWOO INTERNATIONAL	036				
DEC	036				
DENON	041	050			
DENVER	036				
DENZEL	083				
DIGITREX	011	158			
DIK	152				
DK DIGITAL	152				
DRAGON	152				
DUAL	083	152			
ELTA	004	010	044		
ENZER	083				
EMERSON	013	019	032	067	
FISHER	015				
FUNAI	019	032			

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GE	***044***	***062***			
GOLDSTAR	***013***	***067***			
GOLEMANS	***044***				
GO-VIDEO	***012***	***016***	***021***		

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DVD Brands	Code				
GRADIENTE	008				
HARMAN/KARDON	023				
HITEKER	011	158			
HOHER	152				
HITACHI	001	035	004	070	067
	083				
INTEGRA	057				
JEKEN	036				
JVC	014	028	067		
KENWOOD	036	041			
KENDO	036				
KISS	083				
KLH	044				
KONKA	042	049	056	063	
KOSS	008				
LASONIC	006				
LECSON	088				
LENCO	036	152			
LENOXX	044				
NEXIA	036				
LIFETEC	152				
LG	013	072	067	059	
LUXMAN	004	070			
MAGNAVOX	026	027			
MARANTZ	013	026	027		
MDS	036				
MEDION	152				
MEMOREX	018				
MICROSOFT	020				
MICROSTAR	152				
MINTEK	044				
MITAUBISHI	055				
MONYKA	083				
MUSTEK	051				
NAD	013	065			
NAKAMICHI	058				
NORDMENDE	152				
MBO	044				
NEUFUNK	083				
ONKYO	056				
OMNI	044	036			
OPTIMUS	001				

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ORITRON	***008***				
PALSONIC	***158***	***067***			
PANASONIC	***041***	***068***			

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DVD Brands	Code				
PACIFIC	018	152			
PHILIPS	026	027	064	045	
PHONOTREND	036				
PIONEER	001				
PROLINE	008	158	085		
PROSCAN	062				
PROSONIC	036				
RADIOSHACK	038	066	067		
RAITE	083				
REC	067				
REOC	053				
REVOY	036				
RCA	038	044	062	066	067
ROADSTAR	067	044	036		
ROTEL	067				
SAMSUNG	012	021	070	071	
SAMPO	022				
SANSUI	000				
SANYO	015				
SCOTT	158				
SEG	029	083			
SILVASCHNEIDER	152				
SHARP	020	067			
SHANGHAI	158				
SHERWOOD	009	073			
SHINCO	044				
SINGER	044				
SM ELECTRONIC	044				
SONY	033	034	004	070	
SOUNDWORKS	088				
SYLVANIA	019	032			
SYLMPHONIC	019	032			
SVA	158				
TEAC	001	067			
TECHNICS	041	068			
TEASAI	044				
TEVION	018	031	046	053	060
THETA DIGITAL	001				
TOSHIBA	000	017	024	026	
TOKAI	083				
UMAX	044				
UNITED	035				

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UNIVERSUM	***067***				
VOXSON	***152***				
WELKIN	***152***				

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DVD Brands	Code				
WESDER	***036***				
WHARFEDALE	***059***	***085***	***088***		
WINDY SAM	***040***	***070***			
XMS	***067***				
YAMAHA	***041***	***043***			
YAMAKAWA	***030***	***083***			
ZENITH	***068***	***013***	***069***	***067***	

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